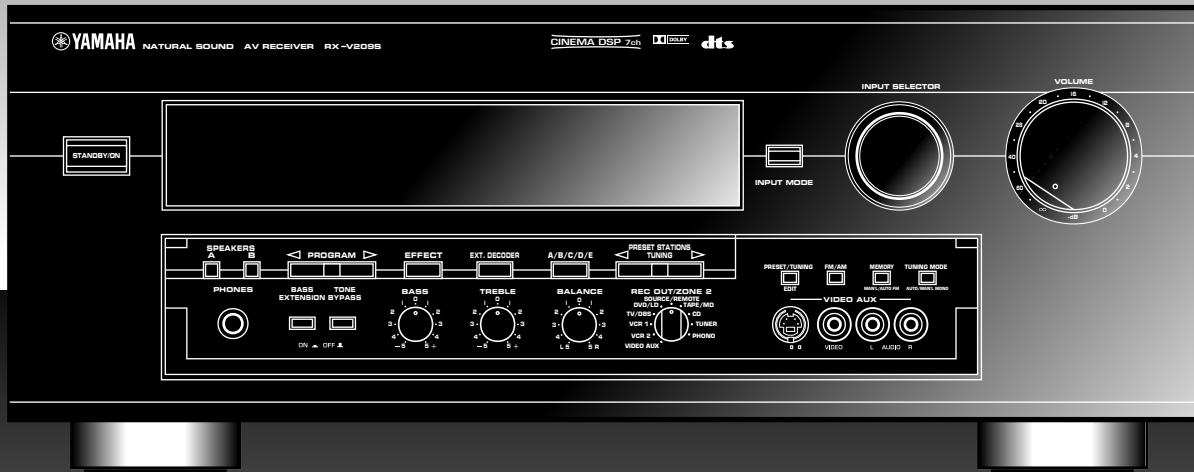


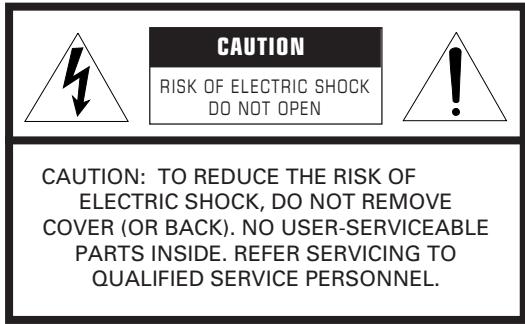


RX-V2095

**NATURAL SOUND AV RECEIVER
AMPLI-TUNER AUDIO-VIDEO**



**OWNER'S MANUAL
MODE D'EMPLOI**



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

IMPORTANT

Please record the serial number of your unit in the space below.

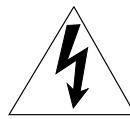
Model:

Serial No.:

The serial number is located on the rear of the unit.

Retain this Owner's Manual in a safe place for future reference.

• Explanation of Graphical Symbols



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert you to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert you to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

SAFETY INSTRUCTIONS

- 1 Read Instructions – All the safety and operating instructions should be read before the unit is operated.
- 2 Retain Instructions – The safety and operating instructions should be retained for future reference.
- 3 Heed Warnings – All warnings on the unit and in the operating instructions should be adhered to.
- 4 Follow Instructions – All operating and other instructions should be followed.
- 5 Water and Moisture – The unit should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
- 6 Carts and Stands – The unit should be used only with a cart or stand that is recommended by the manufacturer.
 - 6A A unit and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the unit and cart combination to overturn.
 
- 7 Wall or Ceiling Mounting – The unit should be mounted to a wall or ceiling only as recommended by the manufacturer.
- 8 Ventilation – The unit should be situated so that its location or position does not interfere with its proper ventilation. For example, the unit should not be situated on a bed, sofa, rug, or similar surface, that may block the ventilation openings; or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
- 9 Heat – The unit should be situated away from heat sources such as radiators, stoves, or other appliances that produce heat.
- 10 Power Sources – The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the unit.
- 11 Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the unit.
- 12 Cleaning – The unit should be cleaned only as recommended by the manufacturer.
- 13 Nonuse Periods – The power cord of the unit should be unplugged from the outlet when left unused for a long period of time.
- 14 Object and Liquid Entry – Care should be taken so that objects do not fall into and liquids are not spilled into the inside of the unit.
- 15 Damage Requiring Service – The unit should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the unit; or
 - C. The unit has been exposed to rain; or
 - D. The unit does not appear to operate normally or exhibits a marked change in performance; or
 - E. The unit has been dropped, or the cabinet damaged.
- 16 Servicing – The user should not attempt to service the unit beyond those means described in the operating instructions. All other servicing should be referred to qualified service personnel.
- 17 Power Lines – An outdoor antenna should be located away from power lines.
- 18 Grounding or Polarization – Precautions should be taken so that the grounding or polarization is not defeated.

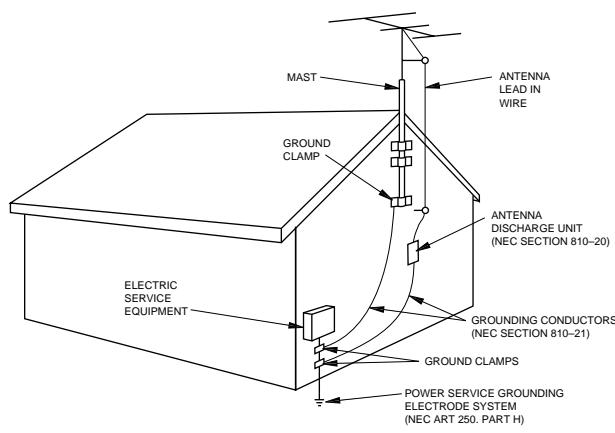
19 For US customers only:

Outdoor Antenna Grounding – If an outside antenna is connected to this unit, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

EXAMPLE OF ANTENNA GROUNDING



NEC – NATIONAL ELECTRICAL CODE

FCC INFORMATION (for US customers only)

1. IMPORTANT NOTICE : DO NOT MODIFY THIS UNIT!

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

2. IMPORTANT : When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3. NOTE : This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices.

This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices.

Compliance with FCC regulations does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

Relocate either this product or the device that is being affected by the interference.

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial type cable.

If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Electronics Corp., U.S.A. 6660 Orangethorpe Ave, Buena Park, CA 90620.

The above statements apply ONLY to those products distributed by Yamaha Corporation of America or its subsidiaries.

We Want You Listening For A Lifetime

YAMAHA and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion – and, most importantly, without affecting your sensitive hearing.

Since hearing damage from loud sounds is often undetectable until it is too late, YAMAHA and the Electronic Industries Association's Consumer Electronics Group recommend you to avoid prolonged exposure from excessive volume levels.



Congratulations!

You are the proud owner of a Yamaha Digital Sound Field Processing (DSP) System—an extremely sophisticated audio component. The DSP system takes full advantage of Yamaha's undisputed leadership in the field of digital audio processing to bring you a whole new world of listening experiences. Follow the instructions in this manual carefully when setting up your system, and the DSP system will sonically transform your room into a wide range of listening environments—anything from a famous concert hall to a cozy jazz club. In addition, you get incredible realism from most of surround-sound encoded video sources available in the market using the built-in Dolby Pro Logic Surround Decoder, Dolby Digital Decoder and DTS Decoder.

Seven built-in channels of amplification on this model mean that no additional amplifiers are required to enjoy advanced digital sound field processing.

Rather than tell you about the wonders of digital sound field processing, however, let's get right down to the business of setting up the system and trying out its many capabilities. Please read this operation manual carefully and store it in a safe place for later reference.

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CAUTION : Read this before operating your unit.

1. To assure the finest performance, please read this manual carefully. Keep it in a safe place for future reference.
2. Install this unit in a cool, dry, clean place – away from windows, heat sources, sources of excessive vibration, dust, moisture and cold. Avoid sources of humming (transformers, motors). To prevent fire or electrical shock, do not expose the unit to rain or water.
3. Never remove the unit cover. Contact your dealer if an object falls inside the unit.
4. Do not use force on switches, controls or connection wires. When moving the unit, first disconnect the power plug and the wires connected to other equipment. Never pull on the wires themselves.
5. The openings on the unit cover assure proper ventilation of the unit. If these openings are obstructed, the temperature inside the unit will rise rapidly. Therefore, avoid placing objects against these openings, and install the unit in a well-ventilated area to prevent fire and damage.

<Singapore model>

Be sure to allow a space of at least 10 cm behind, 20 cm on the both sides and 30 cm above the top panel of the unit to prevent fire and damage.

6. The voltage used must be the same as that specified on this unit. Using this unit with a higher voltage than specified is dangerous and may result in fire or other accidents. YAMAHA will not be held responsible for any damage resulting from use of this unit with a voltage other than specified.
7. Digital signals generated by this unit may interfere with other equipment such as tuners, receivers or TVs. Move this unit farther away from such equipment if interference is observed.
8. Always set the VOLUME control to “-∞” before starting the audio source play. Increase the volume gradually to an appropriate level after playback has been started.
9. Do not attempt to clean the unit with chemical solvents; this might damage the finish. Use a clean, dry cloth.
10. Be sure to read the “TROUBLESHOOTING” section regarding common operating errors before concluding that the unit is faulty.
11. When not planning to use this unit for long periods of time, disconnect the AC power plug from the wall outlet.
12. To prevent lightning damage, disconnect the AC power plug and antenna cable when there is an electrical storm.
13. Grounding or polarization – Precautions should be taken so that the grounding or polarization of an appliance is not defeated.
14. Do not connect an audio unit to the AC outlet on the rear panel if the equipment requires more power than the outlet is rated to provide.
15. **Voltage Selector (China and General Models only)**
The voltage selector on the rear panel of this unit must be set for your local main voltage BEFORE plugging into the AC main supply.
Voltages are 110/120/220/240 V AC, 50/60 Hz.

This unit is not disconnected from the AC power source as long as it is connected to the wall outlet, even if this unit itself is turned off. This state is called the standby mode. In this mode, this unit is designed to consume a small amount of power.

FREQUENCY STEP switch (China and General Models only)

Because the interstation frequency spacing differs in different areas, set the FREQUENCY STEP switch (located at the rear) according to the frequency spacing in your area. Before setting this switch, disconnect the AC power plug of this unit from the AC outlet.

For Canadian Customers

To prevent electric shock, match wide blade of plug to wide slot and fully insert.

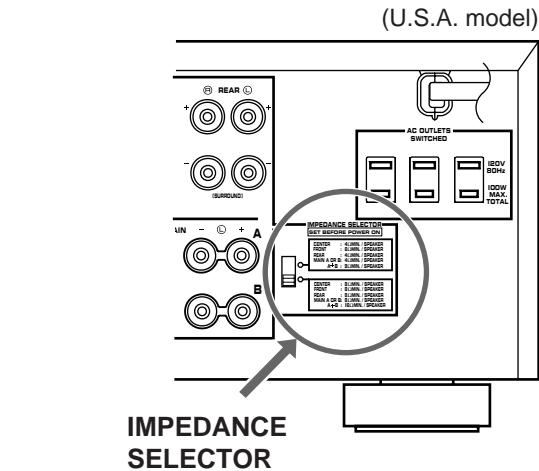
This Class B digital apparatus complies with Canadian ICES-003.

WARNING

Do not change the IMPEDANCE SELECTOR switch setting while the power to this unit is on, otherwise this unit may be damaged.

IF THIS UNIT FAILS TO TURN ON WHEN THE STANDBY/ON SWITCH IS PRESSED:

The IMPEDANCE SELECTOR switch may not be set to either end. If so, set the switch to either end when this unit is in the standby mode.



INTRODUCTION

Features

7 Channel Power Amplification

Main: 100W + 100W (8Ω) RMS Output Power, 0.02% THD, 20–20,000 Hz
Center: 100W (8Ω) RMS Output Power, 0.02% THD, 20–20,000 Hz
Rear: 100W + 100W (8Ω) RMS Output Power, 0.02% THD, 20–20,000 Hz
Front effect: 25W + 25W (8Ω) RMS Output Power, 0.05% THD, 1 kHz

Sophisticated FM/AM Tuner

- 40-Station Random Access Preset Tuning
- Automatic Preset Tuning
- Preset Station Shifting Capability (Preset Editing)
- IF Count Direct PLL Synthesizer Tuning System

Multi-Mode Digital Sound Field Processing

- Digital Sound Field Processor (DSP)
- Dolby Digital Decoder
- Dolby Pro Logic Surround Decoder
- DTS Decoder
- CINEMA DSP: Theater-like Sound Experience by the Combination of YAMAHA DSP Technology and Dolby Digital, Dolby Pro Logic or DTS
- Automatic Input Balance Control for Dolby Pro Logic Surround
- Test Tone Generator for Easier Speaker Balance Adjustment
- Speaker Output Mode Selection Capability for the Most Suitable Use of Your Speaker System

Others

- “SET MENU” Mode which Provides You with 8 Titles of Setting Changes and Adjustments for Optimizing This Unit for Your Audio/Video System
- BASS EXTENSION Button for Reinforcing Bass Response
- On Screen Display Function Helpful in Controlling This Unit
- REC OUT Selector which is Independent of Input Source Selection
- SLEEP Timer
- OPTICAL and COAXIAL Digital Audio Signal Terminals
- 6 Channel External Decoder Input for Other Future Formats
- Video Signal Input/Output Capability (Including S Video Connections)
- Multi-Functional remote controller with “Learning” Capability
- Dual-Room Audio/Video System Setup Capability (Custom Installation)

What's DSP?

Introduction

Welcome to the exciting world of digital home entertainment. This unit is one of the most complete and advanced AV receiver available. Some of the more advanced features may not be familiar to you, but they are easy to use. State-of-the-art technologies such as Dolby Digital and Digital Theater Systems (DTS) may be new to your home, but you have probably experienced the amazing realism they bring to feature films in theaters around the world.

To make the listening experience even more enjoyable, this unit includes a number of exclusive, digitally created listening environments known as digital sound fields. Choosing a sound field program is like transporting yourself to such venues as an outdoor arena, a European church, or a cozy jazz club. Take some time now to read more about these features and enjoy the new experiences this unit brings to your home theater.

Digital Sound Field Processing

Technological advances in sound reproduction over the last 30 years have enhanced the listening experience with improved clarity, precision and power. However, something has still been missing: The atmosphere and acoustic ambiance of the public venue. Our Yamaha engineers have extensively researched the nature of sound acoustics and the way sound reflects inside a room. We sent these engineers to famous theaters and concert halls around the world to measure the acoustics of those venues with sophisticated microphones. The data they collected is used to recreate these environments in digital sound fields. Some of these digital sound fields are created using data measured directly at the original venue; others are created from combinations of data to form unique environments for specific purposes.

Of course, that only solves half of the problem. These engineers have no way of knowing the acoustics of your listening room, so we've made it possible for you to adjust the various parameters of this data to tailor each virtual venue to your taste. You can use these sound fields to enhance any source and in combination with any of the following surround sound technologies. Some are designed especially for music, and some especially for movies.

Dolby Pro Logic Surround

Dolby Pro Logic Surround has been used in movie theaters since the mid-seventies. It has also been available in home entertainment systems since the late eighties and continues to be a popular format for home theater systems. It uses four discrete channels and five speakers to reproduce realistic and dynamic sound effects: two main channels (left and right), a center channel for dialog, and a rear channel for special sound effects. The rear channel reproduces sound within a narrow frequency range.

Most video tapes and laser discs include Dolby Pro Logic Surround encoding as do many TV and cable broadcasts. The Dolby Pro Logic Surround decoder built into this unit employs a digital signal processing system that stabilizes each channel for even more accurate sound positioning than is available with standard analog processors.

Dolby Digital

Dolby Digital is the next level of Dolby Surround sound system developed for 35 mm film-movies by employing low bit-rate audio coding.

Dolby Digital is a digital surround sound system that provides completely independent multi-channel audio to you. Dolby Digital provides five full range channels in what is sometimes referred to as a "3/2" configuration: three front channels (left, center and right), and two surround channels. A sixth bass-only effect channel is also provided for output of LFE (low frequency effect), or low bass effects that are independent of other channels. (This is called the "subwoofer channel" or "LFE channel".) This channel is counted as 0.1, thus giving rise to the term 5.1 channels in total.

Compared to Dolby Pro Logic that is referred to a "3/1" system (left front, center, right front and just one surround channel), Dolby Digital features two surround channels, called stereo or split surrounds, each offering the same full range fidelity as the three front channels.

By using the built-in Dolby Digital decoder, you can experience the dramatic realism and impact of Dolby Stereo Digital theater sound in your home.

Wide dynamic range of sound reproduced by the five full range channels and precise sound orientation by the digital sound processing presents listeners much excitement and realism that has never been experienced before.

Dolby Digital forms 5.1 channels as mentioned left, and moreover, it can also form fewer channels, for example 2 channel stereo and monaural. You may be able to find some 2 channel stereo and/or monaural sources encoded with Dolby Digital in the market.

Laserdisc and DVD are home audio formats that could benefit from Dolby Digital. In the near future, Dolby Digital will also be applied to DBS, CATV and HDTV. The ongoing release of Dolby Stereo Digital theatrical films now underway will provide an immediate source of Dolby Digital encoded video software.



Manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY", "AC-3", "Pro Logic", and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

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DTS Digital Surround

DTS (Digital Theater Systems) system was developed to replace analog soundtracks of movies with six discrete channels of digital soundtracks, and now, it is installed in many theaters around the world. The DTS digital playback system changed the way we experienced movies in theaters with six discrete channels of superb digital audio.

The DTS technology, through intense research and development, made it possible to deliver a similar encode/decode discrete technology to home audio surround-sound entertainment.

The DTS Digital Surround is an encode/decode system which delivers six channels of master-quality, 20-bit audio; technically 5.1 channels, which means 5 full-range (left, center, right and two surround) channels, plus a subwoofer (LFE) channel (as "0.1"). It is compatible with the 5.1 speaker configurations that are currently available for home theater systems

The DTS Digital Surround algorithm is designed to encode the six channels of 20-bit audio onto some laserdiscs, compact discs and DVDs with considerably less data-compression.

By using the DTS decoder built into this unit, you can experience the dramatic realism and impact of the DTS installed theater's high quality sound in your home.

Laserdisc, compact disc and DVD are home audio format within which DTS can represent its high quality multi-channel audio. (In addition to movies on laserdiscs, many exciting new multi-channel music recordings will also become available in the form of DTS-encoded compact discs.)



Manufactured under license from Digital Theater Systems, Inc. US Pat. No. 5,451,942 and other world-wide patents issued and pending. "DTS", "DTS Digital Surround", are trademarks of Digital Theater Systems, Inc. Copyright 1996 Digital Theater Systems, Inc. All Rights Reserved.

CINEMA DSP: Dolby Surround + DSP / DTS + DSP

The Dolby Surround sound and DTS systems show their full ability in a large movie theater, because movie sounds are originally designed to be reproduced in a large movie theater that uses a multitude of speakers. Trying to create a sound environment similar to that of a movie theater in your home is difficult because of the room size, material inside the walls, the number of speakers, and so on. In other words, your listening room is very different from a movie theater.

However, Yamaha DSP technology allows you to create nearly the same sound experience as that of a large movie theater in your home by compensating for the lack of presence and dynamics in the listening room with original digital sound fields combined with Dolby Surround or DTS Digital Surround sounds.

CINEMA DSP

The YAMAHA "CINEMA DSP" logo indicates those programs that are created by the combination of YAMAHA DSP technology and Dolby Surround or DTS.

Dolby Pro Logic + 2 Digital Sound Fields

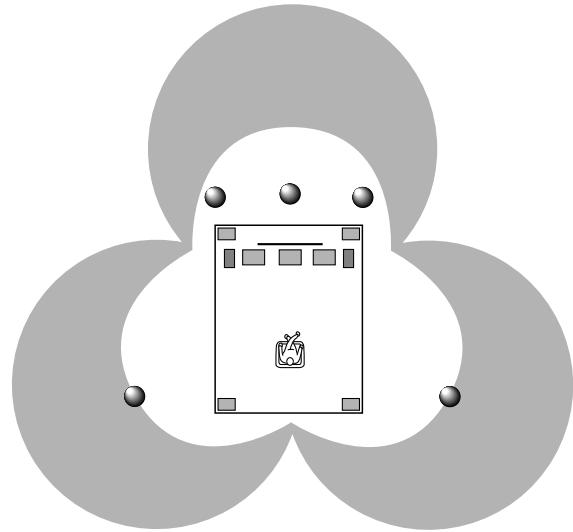
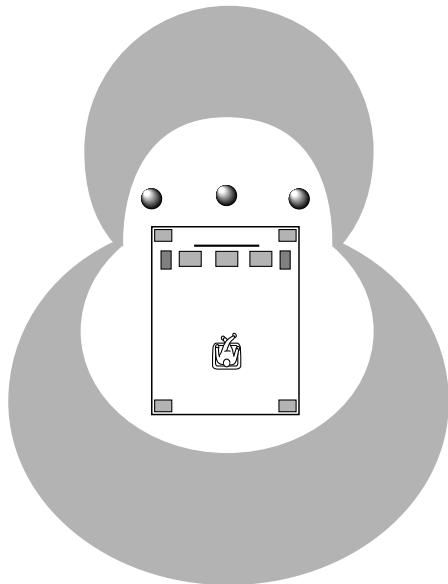
Digital sound fields are created on the presence side and the rear surround side of the Dolby Pro Logic Surround-decoded sound field respectively. They create a wide acoustic environment and emphasize surround-effect in the room, letting you feel much presence as if you were watching a movie in a popular Dolby Stereo theater.

This combination is available when the digital sound field program No. 8, 9, 10, 11 or "PRO LOGIC/Enhanced" of No. 12 is selected, and the input signal of the source is analog, PCM audio or encoded with the Dolby Digital in 2-channels.

Dolby Digital or DTS + 3 Digital Sound Fields

Digital sound fields are created on the presence side and the independent left and right surround sides of the Dolby Digital-decoded or the DTS-decoded sound field respectively. They create a wide acoustic environment and much surround effect in the room without losing high channel separation. With wide dynamic range of Dolby Digital or DTS sound, this sound field combination lets you feel as if you were watching a movie in the newest Dolby Stereo Digital theater or DTS installed theater. This is the most ideal home theater sound at the present time.

This combination is available when the digital sound field program No. 8, 9, 10, 11 or "DOLBY DIGITAL (or DTS DIGITAL SUR.)/Enhanced" of No. 12 is selected, and the input signal of the source is encoded with the Dolby Digital (except in 2-channels) or encoded with the DTS.



GETTING STARTED

English

Getting started

Unpacking

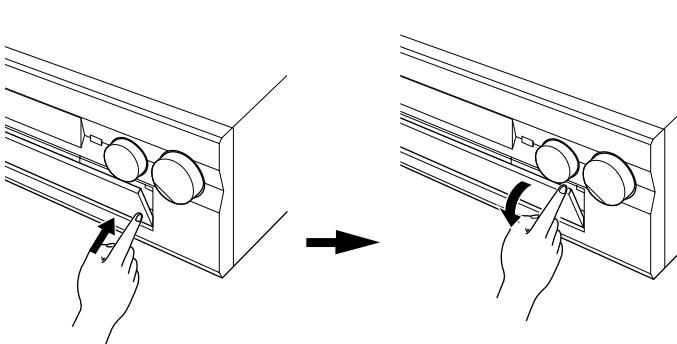
Carefully remove this unit and accessories from the box. You should find the unit itself and the following accessories.

Remote controller (for the main room)	ZONE 2 Remote controller	Indoor FM Antenna
User function stickers		AM Loop Antenna
Antenna adapter (U.S.A. and Canada models only)		
Batteries (size AA, LR6, UM-3)		

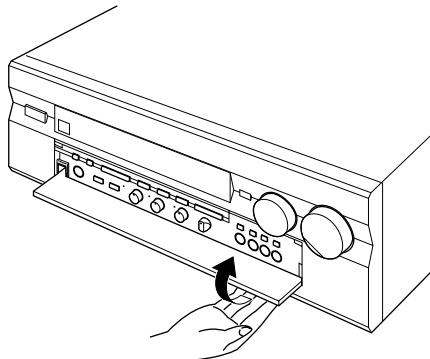
Opening and closing the front cover

Close the front cover whenever the controls inside the panel are not used.

To open the front cover



To close the front cover

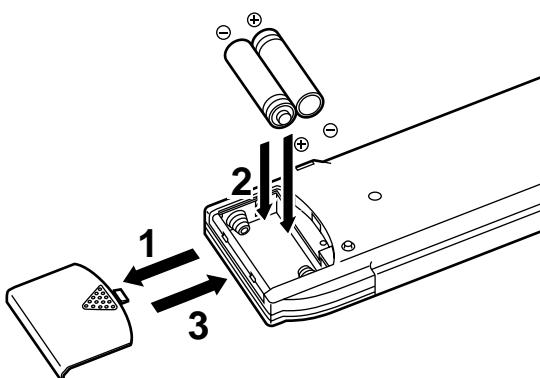


Installing batteries in the remote controller

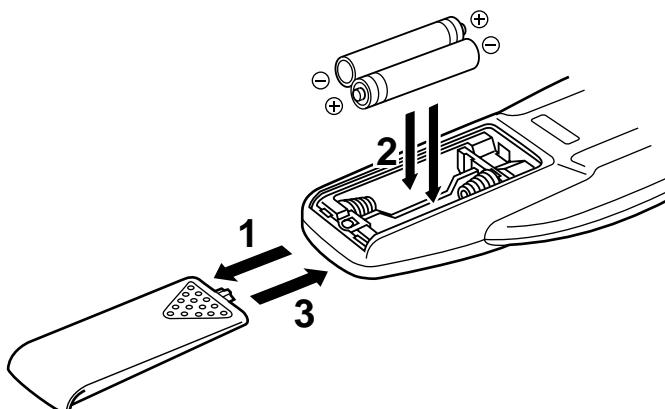
Since the remote controller will be used for many of this unit's control operations, you should begin by installing the supplied batteries.

1. Turn the remote controller over and slide the battery compartment cover in the direction of the arrow.
2. Insert the batteries (AA, LR6, UM-3 type) according to the polarity markings on the inside of the battery compartment.
3. Close the battery compartment cover.

Remote controller for the main room

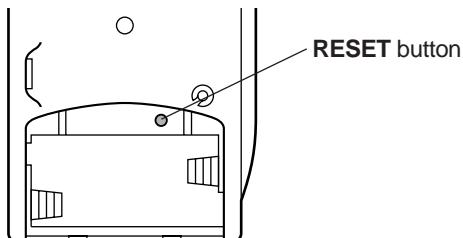


ZONE 2 remote controller



Note on the remote controller for the main room

After the batteries are inserted, press the **RESET** button before using the remote controller.



Notes about the remote controller

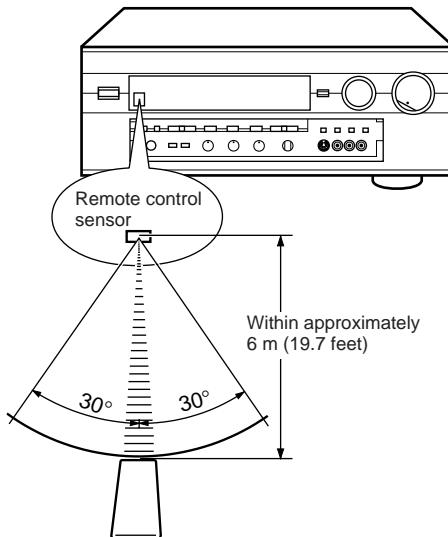
Battery replacement

If you find that the remote controller must be used closer to the main unit, the batteries are weak. Replace both batteries with new ones.

Notes

- Use only AA, R6, UM-3 batteries. (It is recommended to use an LR6 type to use the remote controller for a long period of time.)
- Be sure the polarities are correct. (See the illustration inside the battery compartment.)
- Remove the batteries if the remote controller is not used for an extended period of time.
- If batteries leak, dispose of them immediately. Avoid touching the leaked material and contact with clothing, etc. Clean the battery compartment thoroughly before installing new batteries.

Remote controller operation range

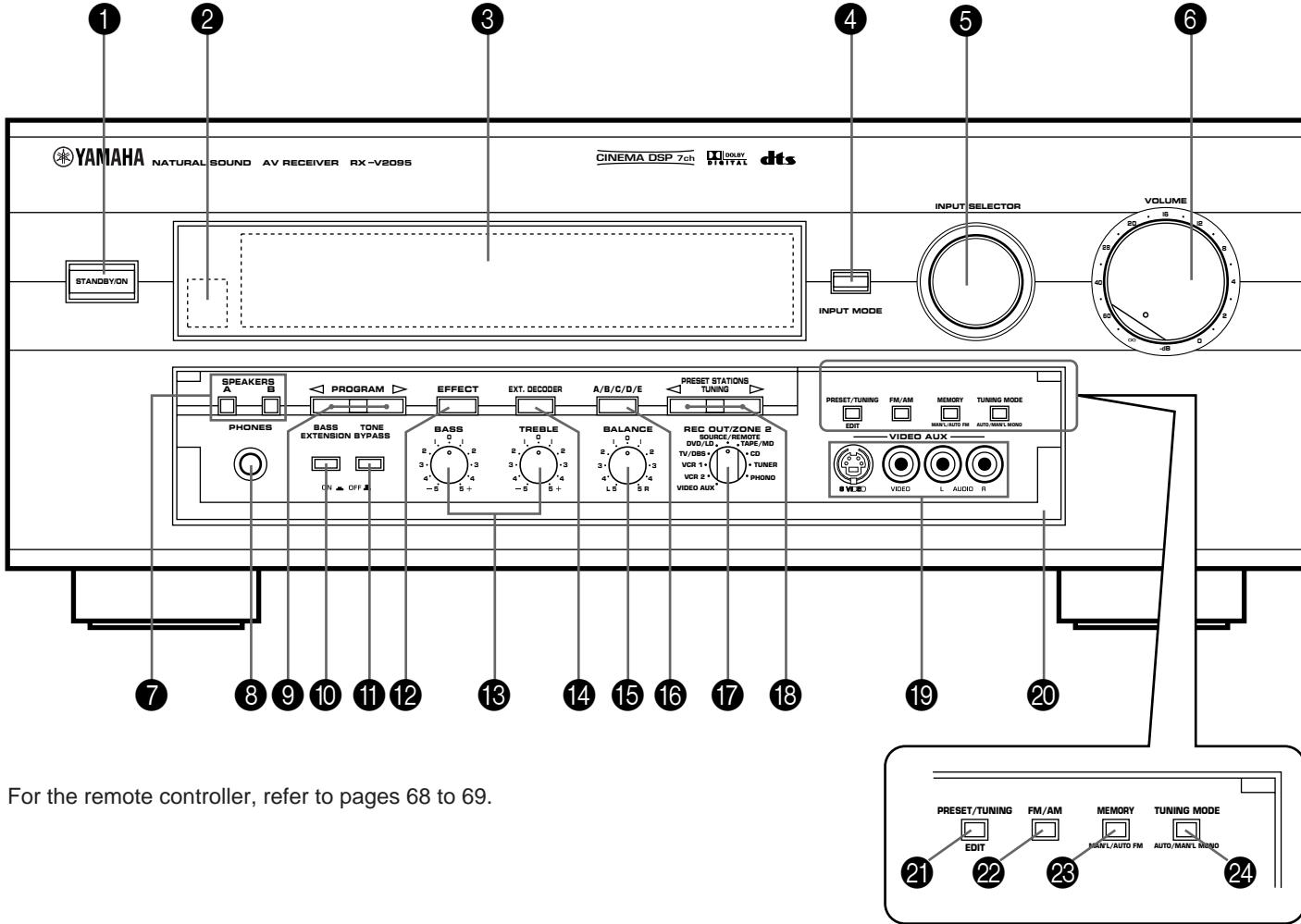


Notes

- The area between the remote controller and the main unit must be clear of large obstacles.
- Do not expose the remote control sensor to strong lighting, in particular, an inverter type fluorescent lamp. Otherwise, the remote controller may not work properly. If necessary, position the main unit away from direct lighting.

Controls and their functions

Front panel



For the remote controller, refer to pages 68 to 69.

1 STANDBY/ON switch

Press this switch to turn on the power. Press this switch again to set this unit in the standby mode.

* A click from the switch and the initial rotation of the built-in fan will be heard when the power is turned on.

Standby mode

This unit is still using a small amount of power in this mode in order to be ready to receive infrared-signals from the remote controller.

2 Remote control sensor

Receives signals from the remote controller.

3 Display panel

Displays a variety of information. (Refer to page 11 for details.)

4 INPUT MODE button

Press this button to select how input signals are received from sources that output two or more types of signals. The "AUTO", "DTS" and "ANALOG" modes are available. Refer to page 38 for details.

◀Australia, China, Singapore and General models only▶

The "AUTO", "D.D.RF", "DTS", "DGTL" and "ANALOG" modes are available for DVD/LD sources.

5 INPUT SELECTOR

Turn this knob to select the input source. The selected source will be shown on the display.

6 Master VOLUME control

Simultaneously controls volume for all output sounds; front effect, main, rear, center and subwoofer. (The REC OUT level is not affected.)

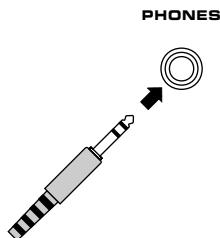
* The indicator on the master VOLUME control will flash when the volume is decreased by pressing the MUTE key on the remote controller.

7 SPEAKERS switches

Press the switch A or B (or both) for the main speakers you will use to select them. Press the switch for the main speakers you will not use again to cancel them. On the display panel, "SPEAKERS A" and/or "SPEAKERS B" will be illuminated, depending on which main speakers are being selected.

8 PHONES jack

Headphones can be plugged into this jack for private listening. You can listen to the sound to be output from the main speakers through headphones. When listening with headphones privately, press both **SPEAKERS A** and **B** switches to cancel both of the main speakers A and B, and turn off the digital sound field processor by pressing the **EFFECT** button so that no DSP program name is illuminated on the display panel.

**9 PROGRAM selector button**

Press this button in the \triangleleft or \triangleright direction to select a digital sound field processing program.

10 BASS EXTENSION button

Press this button inward (ON) to boost the bass frequency response at the main left and right channels while maintaining overall tonal balance. This function is effective for reinforcing the bass frequencies when a subwoofer is not used.

11 TONE BYPASS button

Press this button inward (ON) to bypass the tone (**BASS** and **TREBLE**) control circuitry. This function is used for outputting pure sound and checking the tone control settings. The tone control circuitry can be used when this button is released outward (OFF).

12 EFFECT button

Press this button to turn on and off the output from the center, rear and front effect speakers. The sound becomes normal 2-channel when this function is turned off. However, this does not apply to Dolby Digital or DTS. The signals at all channels will be distributed to the main channels and output from the main speakers, even if the output from the center, rear and front effect speakers are turned off, when Dolby Digital or DTS is decoded.

13 BASS and TREBLE controls

Rotate these knobs to adjust the low and high frequency response for the left and right main channels only.

14 EXT. DECODER button

Press this button to select the input signals from the EXTERNAL DECODER INPUT terminals as the input source. This function takes priority over the **INPUT SELECTOR** setting. "EXT. DECODER IN" will be illuminated on the display panel. The source selected with the **INPUT SELECTOR** knob becomes the current input source when "EXT. DECODER IN" is not illuminated on the display panel.

15 BALANCE control

This knob controls the sound from the main speakers only. The balance of the output volume to the left and right main speakers can be adjusted to compensate for sound imbalances caused by the speaker location or listening room conditions.

16 A/B/C/D/E button

Press this button to select a group (A-E) of preset stations.

17 REC OUT/ZONE 2 selector

Rotate this knob to select the source for recording to an MD recorder (or tape deck) or VCR. This setting is independent of the **INPUT SELECTOR** setting, except when the **REC OUT/ZONE 2** selector is set to the **SOURCE/REMOTE** position. Then the **INPUT SELECTOR** is used to select the source for recording to the MD recorder (or tape deck) or VCR.

For a user who made up a dual-room audio/video system with this unit:

The setting of the **REC OUT/ZONE 2** selector controls the input source for the second room. However, when this selector is set to the **SOURCE/REMOTE** position, the **ZONE 2** remote controller is used to select the input source for the second room. Refer to page 80.

18 PRESET STATIONS/TUNING button

This button is used for the **PRESET STATIONS** function when ":" is illuminated on the display, and the **TUNING** function when ":" is not illuminated. The following explains these functions in detail.

PRESET STATIONS :

Selects a preset station number (from 1 to 8).

Press the \triangleright side to select a higher preset station number.

Press the \triangleleft side to select a lower preset station number.

TUNING :

Used for tuning. Press the \triangleright side to tune in to a higher frequency, and press the \triangleleft side to tune in to a lower frequency.

19 VIDEO AUX terminals

Connect an auxiliary video or audio input source unit such as a camcorder to these terminals. A video unit with a S video output terminal can be connected to the S VIDEO terminal to obtain a high resolution picture. The source can be selected with the **INPUT SELECTOR** and **REC OUT/ZONE 2** selector.

20 Front cover

Refer to page 7 on how to open and close the front cover.

21 PRESET/TUNING (EDIT) button

Press this button to alternately illuminate and turn off "PRESET" on the display panel. This button switches the function of the **PRESET STATIONS/TUNING** button.

This button is also used to exchange the places of two preset stations with each other.

22 FM/AM button

Press this button to switch the reception band between FM and AM.

23 MEMORY (MAN'L/AUTO FM) button

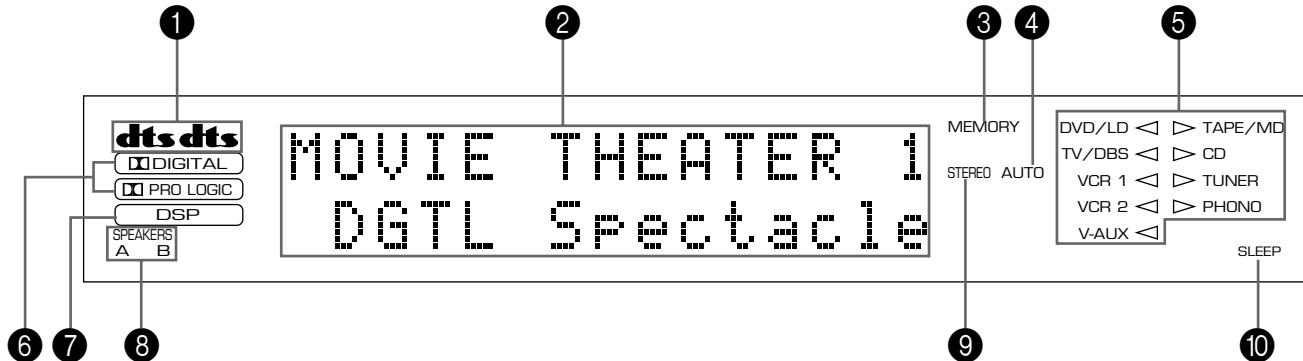
Use this button to enter a station to memory. Refer to the section "Manual preset tuning" on page 44 for details.

Hold down this button for more than 3 seconds to start automatic preset tuning. Refer to page 46 for details.

24 TUNING MODE (AUTO/MAN'L MONO) button

Press this button to switch the tuning mode between automatic and manual. To select the automatic tuning mode, press this button so that the "AUTO" indicator is illuminated on the display. To select the manual tuning mode, press this button so that the "AUTO" indicator is not illuminated.

Display panel



1 dts indicators

Either of the "dts" indicators will be illuminated when the built-in DTS decoder is turned on.

A red "dts" indicator will be illuminated when playing a compact disc or laserdisc encoded with DTS.

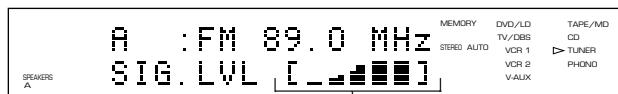
An orange "dts" indicator will be illuminated when playing a DVD encoded with DTS.

An orange "dts" indicator may be illuminated when playing a laserdisc encoded with DTS after a video-CD or DVD on a DVD/LD combi-player.

2 Multi-information display

This display shows the current DSP program and the status of adjustments and setting changes. Several statuses can be viewed at one time.

The current station frequency and band (AM or FM) will also appear when the tuner source input mode is selected.



Indicates the signal level of the received station.

If multipath interference is detected, the indication decreases.

3 MEMORY indicator

A flashing **MEMORY** indicator means a station can be saved, as explained in the following:

Press the **MEMORY** button. The **MEMORY** indicator will flash about 5 seconds. While the indicator is flashing, program the displayed station to memory by using the **A/B/C/D/E** and **PRESET STATIONS/TUNING** buttons.

4 AUTO indicator

This indicator will be illuminated during the automatic tuning mode.

5 Input source indicators

One of the arrows for these indicators will be illuminated depending on which source is selected.

6 **DIGITAL** and **PRO LOGIC** indicators

The **DIGITAL** indicator will be illuminated when the built-in Dolby Digital decoder is on and the signals of the source encoded with Dolby Digital are not 2-channels.

The **PRO LOGIC** indicator will be illuminated when the built-in Dolby Pro Logic Surround Decoder is on.

7 DSP indicator

This indicator will be illuminated when the built-in digital sound field processor is on.

8 SPEAKERS A/B indicators

One of these indicators will be illuminated depending on which main speakers are selected. Both indicators will be illuminated when both speakers A and B are selected.

9 STEREO indicator

This indicator will be illuminated when an FM stereo broadcast with sufficient signal strength is received.

10 SLEEP indicator

This indicator will be illuminated when the built-in SLEEP timer is on.

Speaker setup

■ Setting up your speaker system

This unit has been designed to provide the best sound field quality with a full seven-speaker system setup, using a pair of main speakers to output main source sounds, two extra pairs of effect speakers to generate the sound field plus one center speaker for dialog. We therefore recommend that you use a seven-speaker setup. A four-speaker system using only one pair of effect speakers for the sound field will still provide impressive ambience and effects, however, and may be a good way to begin with this unit. You can always upgrade to the full seven-speaker system later. In the 4 or 5 speaker system, the Digital Sound Field Processing is still performed, but the main speakers are used for both the main channels and the front effect channels.

Use of the center dialog speaker is recommended

When playing back a source with Dolby Pro Logic decoded, or playing back a source which contains center-channel signals with Dolby Digital or DTS decoded, dialog, vocals etc. are output from the center channel. Therefore, if you want to maximize the performance of your Audio/Video home theater system, it is recommended that you use a center channel speaker.

If, for some reason, it is not practical to use a center speaker, it is possible to enjoy the movie without it. Best results, however, are obtained with the full system.

Use of a subwoofer expands your sound field

It is also possible to further expand your system with the addition of a subwoofer and amplifier. The use of a subwoofer is effective not only for reinforcing bass frequencies from any or all channels, but also for reproducing signals at the subwoofer channel with high fidelity during playing back a source with Dolby Digital or DTS decoded. You may wish to choose the convenience of a Yamaha Active Servo Processing Subwoofer System, which has its own built-in power amplifier.

■ Speakers and speaker placement

Your full seven-speaker system will require three speaker pairs: the MAIN SPEAKERS (your normal stereo speakers), the FRONT EFFECT SPEAKERS and the REAR SPEAKERS, plus the CENTER SPEAKER. You may also be using a SUBWOOFER.

The MAIN SPEAKERS should be high performance models and have enough power handling capacity to accept the maximum output of your audio system.

Other speakers do not have to be equal to the MAIN SPEAKERS. For precise sound localization, however, it is ideal to use high performance models that can reproduce sounds in full range for the CENTER SPEAKER, the FRONT EFFECT and REAR SPEAKERS.

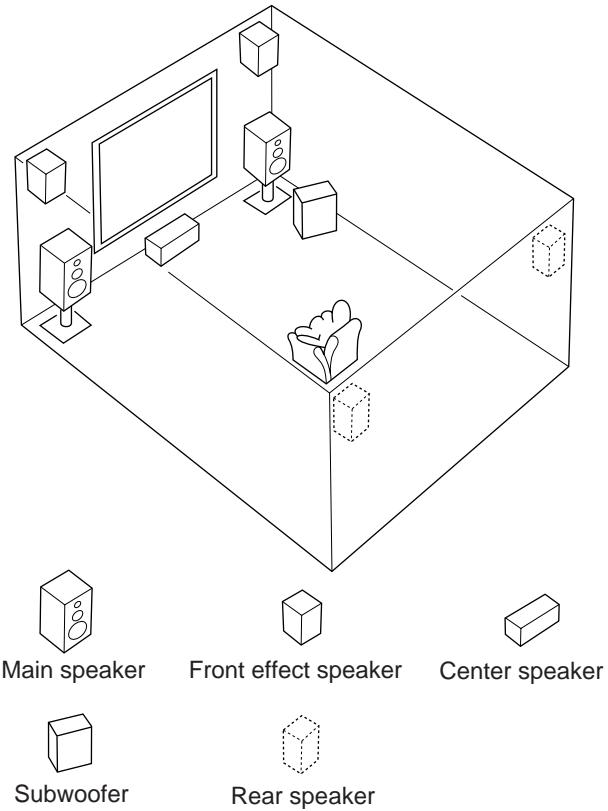
Place the MAIN SPEAKERS in the ordinary position.

Place the FRONT EFFECT SPEAKERS further apart than the MAIN SPEAKERS, on either side of and 0.5–1m behind and above the MAIN SPEAKER pair.

Place the REAR SPEAKERS behind your listening position. They should be nearly 1.8m above the floor.

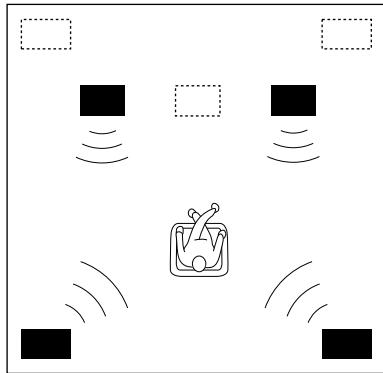
Place the CENTER SPEAKER precisely between the two MAIN SPEAKERS. (To avoid interference, keep the speaker above or below the television monitor, or use a magnetically shielded speaker.)

If using a SUBWOOFER, such as a Yamaha Active Servo Processing Subwoofer System, the position of the speaker is not so critical because low bass tones are not highly directional.



■ Recommended speaker system configurations

4 Speaker System



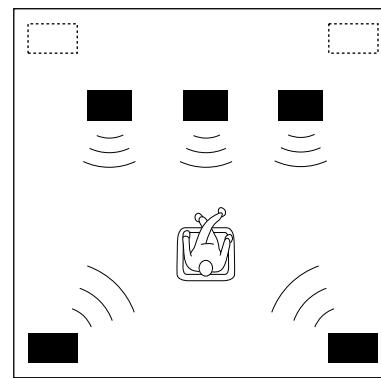
Basic system.

You can enjoy widely diffused sound by only adding a pair of rear speakers to a basic stereo speaker system.

1E. SYS. SETUP—Set to 5ch. (See page 30.)

1A. CENTER SP—Set to NONE. (See page 29.)

5 Speaker System



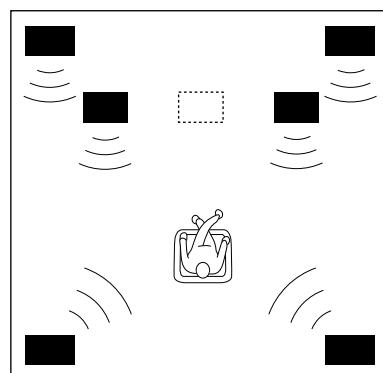
Good for Audio/Video sources.

By the use of a center speaker, center sounds (dialog, vocals etc.) are precisely localized.

1E. SYS. SETUP—Set to 5ch. (See page 30.)

1A. CENTER SP—Set to LRG or SML. (See page 29.)

6 Speaker System



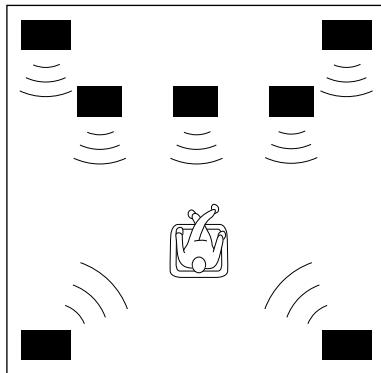
Good for sound fields from 2-channel stereo sources.

When a normal stereo source is played back with the sound field programs No. 1 through No. 7, a sound effect matching that of a 7-speaker system can be obtained. The addition of front left and right effect speakers produces a more effective sound field.

1E. SYS. SETUP—Set to 7ch. (See page 30.)

1A. CENTER SP—Set to NONE. (See page 29.)

7 Speaker System



This is the recommended speaker system, providing the best sound effects.

The rear speakers and the front effect speakers produce a 360-degree sound field, and the center speaker provides precise center localization.

You can experience the amazing YAMAHA "CINEMA DSP" sound fields completely with the 7 speaker system.

1E. SYS. SETUP—Set to 7ch. (See page 30.)

1A. CENTER SP—Set to LRG or SML. (See page 29.)

Connections

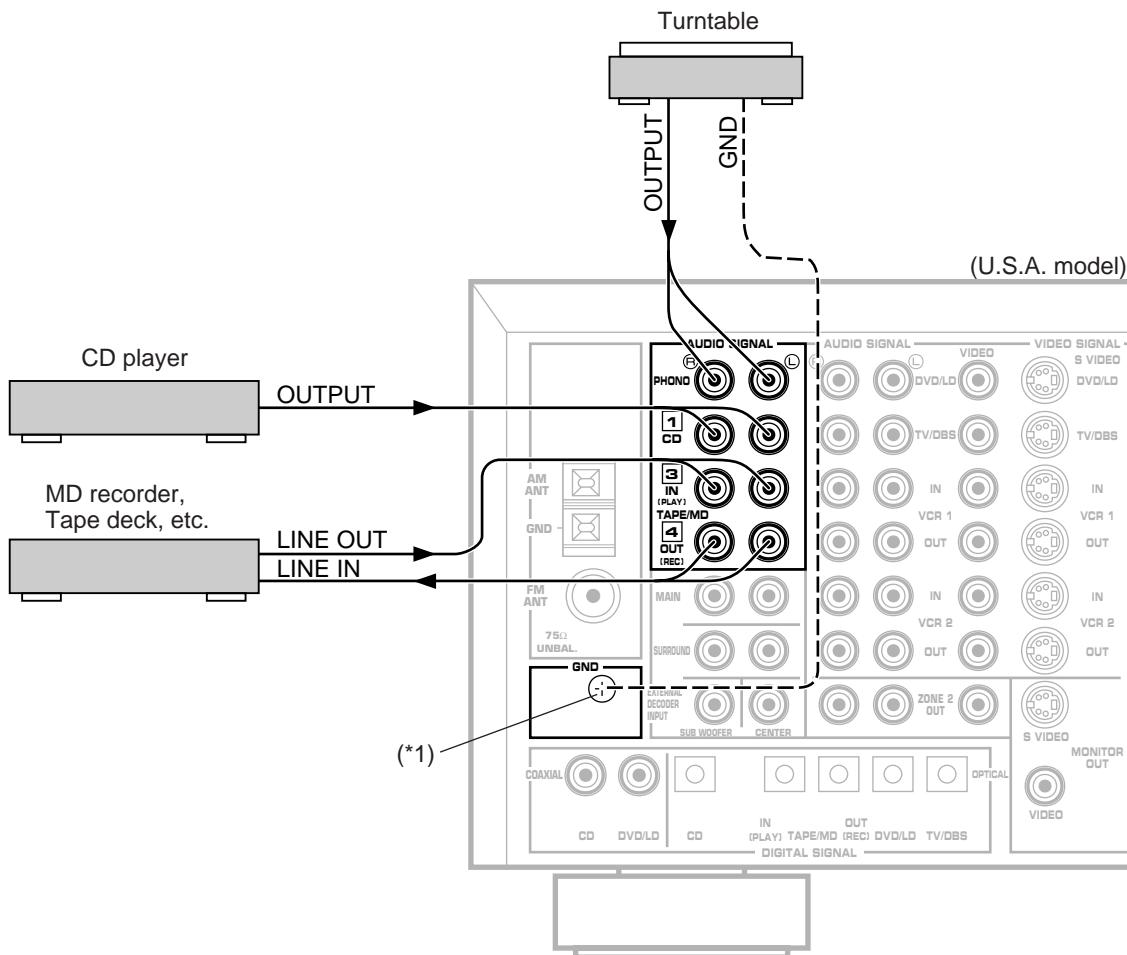
Caution: Plug in this unit and other components after all connections are completed.

All connections must be correct, that is to say L (left) to L, R (right) to R, "+" to "+" and "-" to "-". Also refer to the owner's manual for each of your components.

Audio/video source equipment

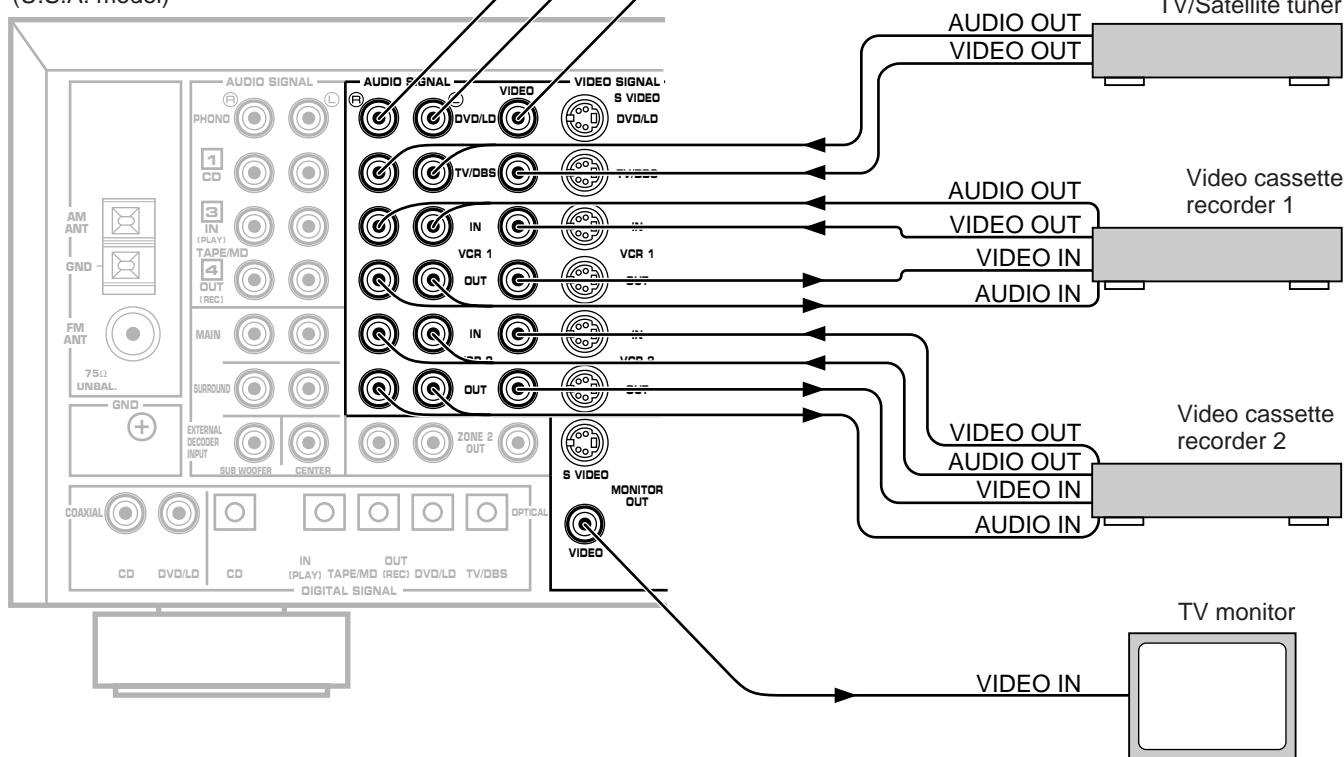
- Use RCA type pin plug cables for audio/video units with the exception described later.
- The output (or input) terminals of YAMAHA audio/video units numbered as 1, 3, 4, etc. on the rear panel must be connected to the same-numbered terminals of this unit.

■ Basic connections of audio units



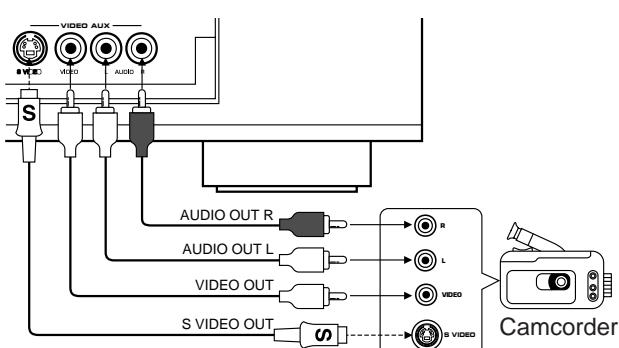
■ Basic connections of video units

(U.S.A. model)



VIDEO AUX terminals (on the front panel)

These terminals are used to connect a video input source such as a camcorder.

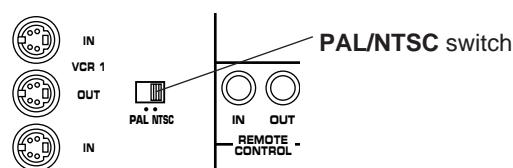


: S-video cable

(Refer to page 20 for details about the S VIDEO terminal.)

PAL/NTSC switch (China and General models only)

This unit is designed for use with the NTSC and PAL television formats. Set this switch to the position for the format your TV monitor employs.



PAL: Set to this position if your TV monitor employs the PAL format.

Outputs signals in the PAL format no matter which format (PAL or NTSC) of video signal is sent from an external video unit to this unit.

NTSC: Set to this position if your TV monitor employs the NTSC format.

Outputs signals in the NTSC format no matter which format (PAL or NTSC) of video signal is sent from an external video unit to this unit.

Note

Be sure to input a video signal which employs the same format that your TV monitor employs, otherwise a picture will not be played back normally.

■ Connecting to digital (OPTICAL and COAXIAL) terminals

If your CD player, MD recorder, LD player, DVD player, TV/satellite tuner, etc. are equipped with coaxial or optical digital audio signal output terminals, they can be connected to this unit's COAXIAL or OPTICAL, or both terminals.

Digital audio signals are transmitted with less loss than analog audio signals. In addition, digital audio signal connections are necessary, especially for an LD player, a DVD player or a CD player to send signals encoded with Dolby Digital or DTS to this unit.

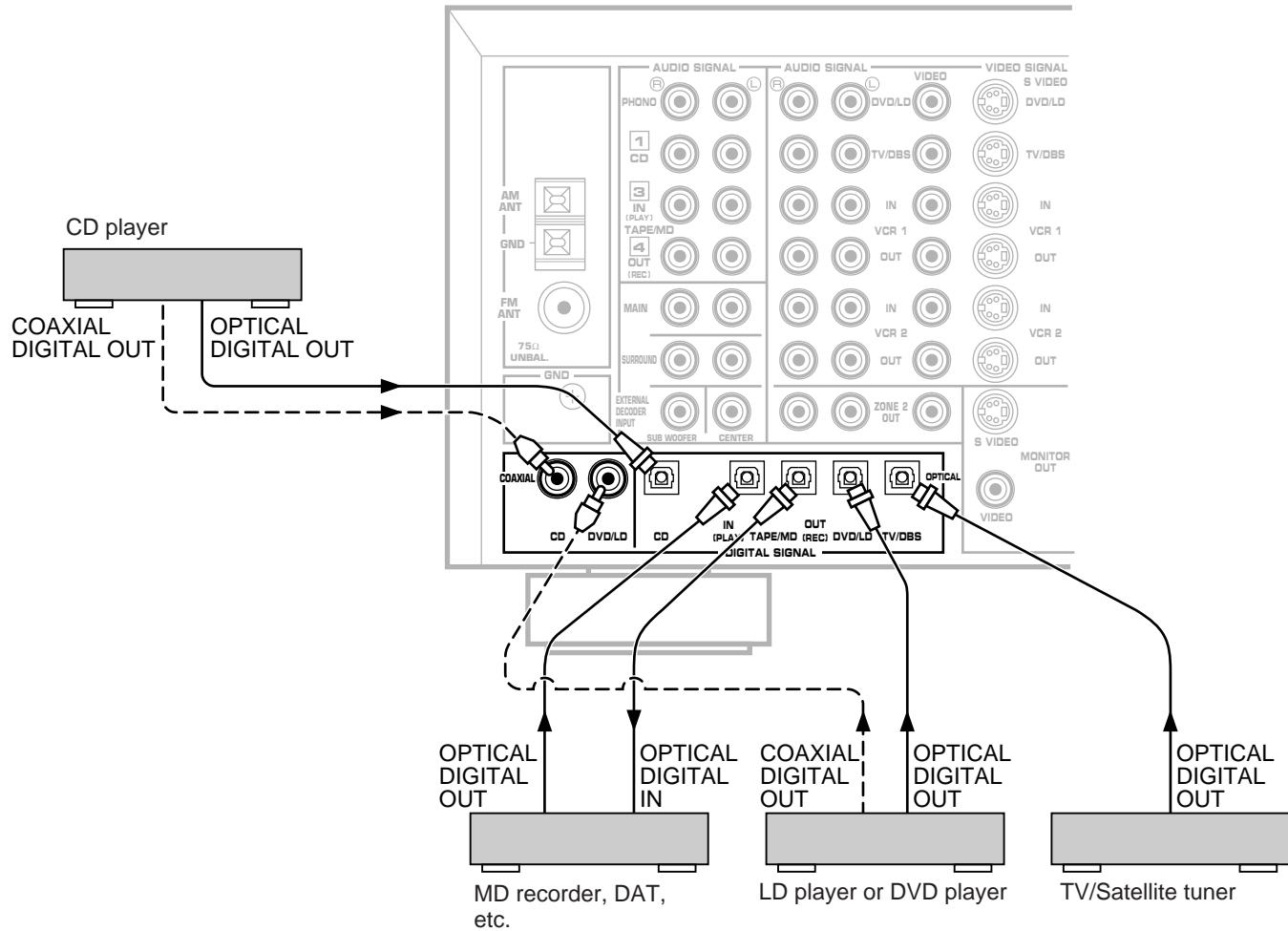
To make an optical digital connection between this unit and an external unit, remove the cover from each optical terminal, and then connect them by using a commercially available optical fiber cable that conforms to EIAJ standards. Other cables might not function correctly.

Even if you connect an audio/video unit to the OPTICAL (or COAXIAL) terminal of this unit, you must keep the unit connected with the same named analog audio signal terminals of this unit, because digital signal cannot be recorded by a tape deck or VCR connected to only analog audio signal terminals of this unit. You can switch the selection of input signals between "digital" and "analog" easily. (See page 38 for details.)

* However, if you connect an MD recorder or DAT to this unit's OPTICAL TAPE/MD IN and OUT terminals, it can record input sources connected to this unit's OPTICAL digital signal input terminals.

<U.S.A. and Canada models>

(U.S.A. model)



 : Optical fiber cable

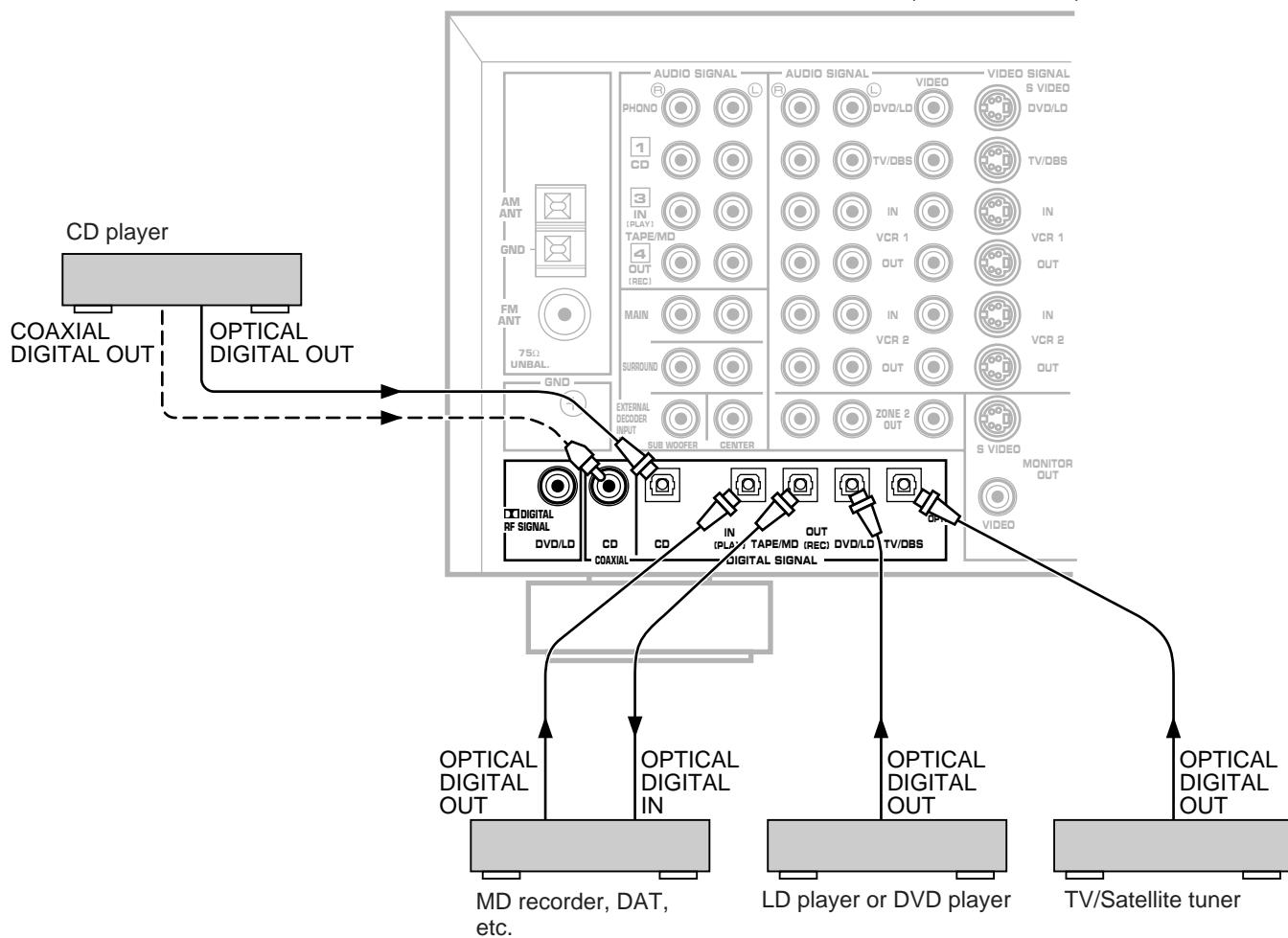
 : Coaxial cable

Notes

- When you connect an audio/video unit to both of the digital and analog terminals of this unit, make sure to connect to both terminals of the same name.
- Be sure to attach the covers when the OPTICAL terminals are not being used, in order to protect the terminals from dust.
- In order to make this unit perform successful DTS-decoding, the DTS bitstream must not be altered, manipulated or corrupted in the process of sending the DTS bitstream from the DIGITAL OUT terminal of an external unit to a digital signal input terminal of this unit.
- Digital audio signals will not be output from the ZONE 2 OUT AUDIO SIGNAL terminals of this unit.
- All digital audio signal input terminals are applicable to the sampling frequency of 32 kHz, 44.1 kHz and 48 kHz.

<Australia, China, Singapore and General models>

(Australia model)



: Optical fiber cable

: Coaxial cable

■ Connecting to DOLBY DIGITAL RF output of the DVD/LD/CD combi-player

<For Australia, China, Singapore and General models only>

If your DVD/LD/CD combi-player has a DOLBY DIGITAL RF signal output terminal, connect it to this unit's **DIGITAL RF SIGNAL** input terminal. Audio signals of an LD source encoded with the Dolby Digital are input to this unit by this connection.

- * To play back an LD source with the Dolby Digital decoded, set the input mode of DVD/LD to "AUTO" or "D.D.RF".
(Refer to page 38 for details.)

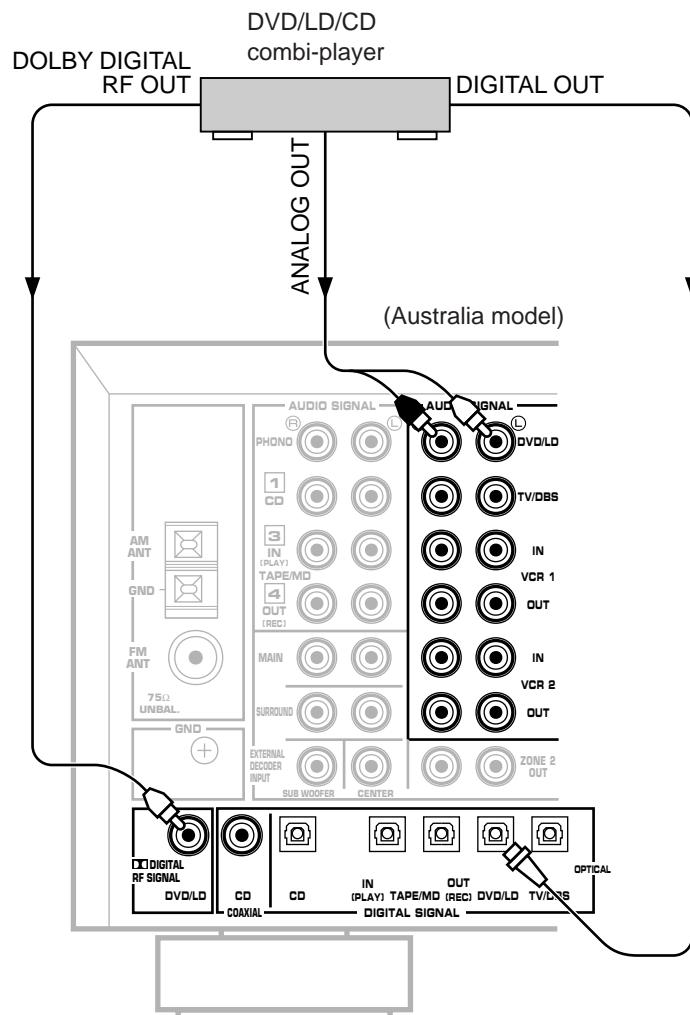
It is also necessary to connect the DVD/LD/CD combi-player to this unit's analog audio signal input terminals regardless of the DOLBY DIGITAL RF signal connection. This is for playing back a source with Dolby Pro Logic Surround decoded or in normal stereo (or monaural).

You must also connect the optical digital signal output terminal of the DVD/LD/CD combi-player to the **OPTICAL DVD/LD** digital signal input terminal of this unit.

This connection is necessary for playing back a DVD source with Dolby Digital or DTS decoded, and playing back an LD source with DTS decoded.

Note

DOLBY DIGITAL RF audio input signal cannot be recorded by a tape deck, MD recorder or VCR. To record a source played back on the DVD/LD/CD combi-player, it must be connected to the **OPTICAL** digital audio signal input terminal and analog audio signal input terminals of this unit.



<For U.S.A. and Canada models only>

If your DVD/LD/CD combi-player has a DOLBY DIGITAL RF signal output terminal, it can be connected to this unit by using an RF demodulator (separate purchase).

First, connect the DOLBY DIGITAL RF signal output terminal of the DVD/LD/CD combi-player to the DOLBY DIGITAL RF signal input terminal of the RF demodulator. Next, connect the coaxial digital signal output terminal of the RF demodulator to the COAXIAL digital signal input terminal of this unit.

This connection is necessary for sending audio signals of an LD source encoded with Dolby Digital to this unit.

It is also necessary to connect the DVD/LD/CD combi-player to this unit's analog audio signal input terminals regardless of the DOLBY DIGITAL RF signal connection. This is for playing back a source with Dolby Pro Logic Surround decoded or in normal stereo (or monaural).

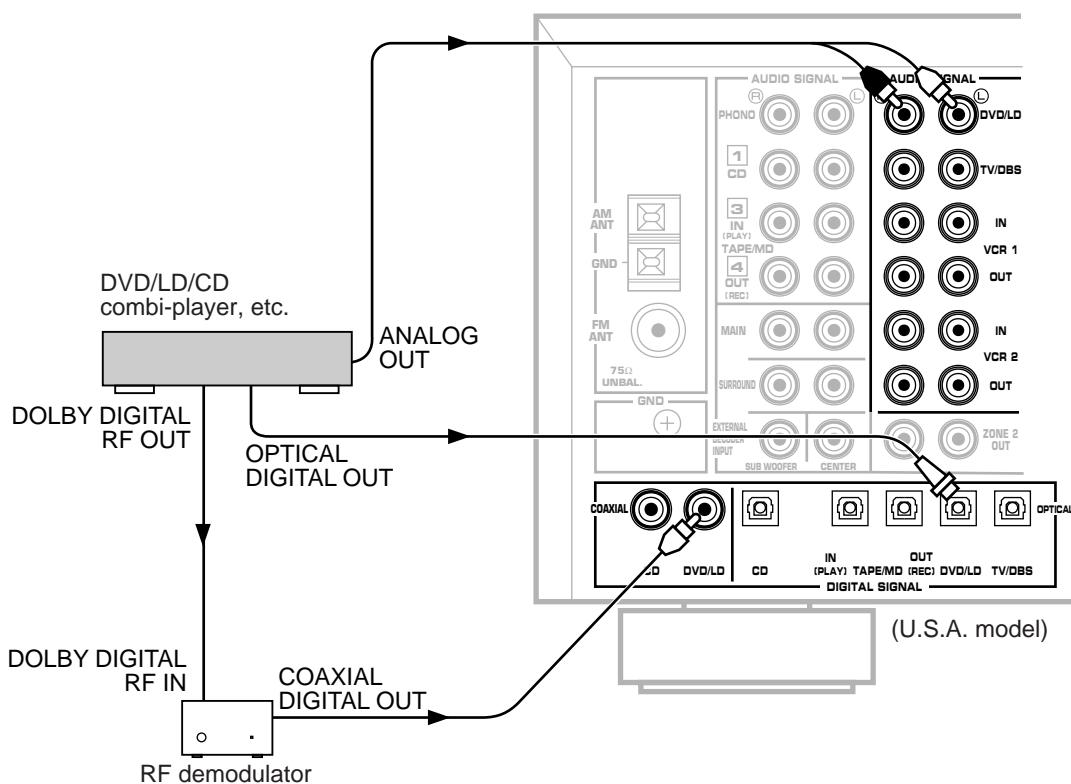
You must also connect the optical digital signal output terminal of the DVD/LD/CD combi-player to the OPTICAL DVD/LD digital signal input terminal of this unit.

This connection is necessary for playing back a DVD source with Dolby Digital or DTS decoded, and playing back an LD source with DTS decoded.

When these connections are completed, set the input mode of the DVD/LD source to "AUTO", and you will hear sounds decoded with Dolby Digital even if signals are input to both COAXIAL and OPTICAL digital signal input terminals of this unit. This is because signals input to the COAXIAL terminal take priority over signals input to the OPTICAL terminal. Refer to page 38 for details about switching the input mode.

Notes

- If, for example, you play a CD on the DVD/LD/CD combi-player, there is no input to the COAXIAL terminal, so the signals input to the OPTICAL terminal take priority. In this case, switch off the RF demodulator to listen to CD sound without interference. However, if your RF demodulator is the Yamaha model APD-1, you do not have to switch it off.
- When you want to play an LD source encoded with Dolby Digital without decoding Dolby Digital, you must switch off the power of the RF demodulator.



■ Connecting to S VIDEO terminals

If your video cassette recorder, LD player, etc. and your monitor are equipped with "S" video terminals, connect them to this unit's S VIDEO terminals, and connect this unit's S VIDEO MONITOR OUT terminal to the "S" video input of your monitor. With this connection, you can play back and record high quality pictures. Otherwise, connect the "composite" video terminals from your video cassette recorder, LD player, etc. to the VIDEO terminals of this unit, and connect this unit's VIDEO MONITOR OUT terminal to the "composite" video input of your monitor.

Note

If video signals are sent to both S VIDEO input and VIDEO input terminals, the signals will be sent to their respective output terminals.

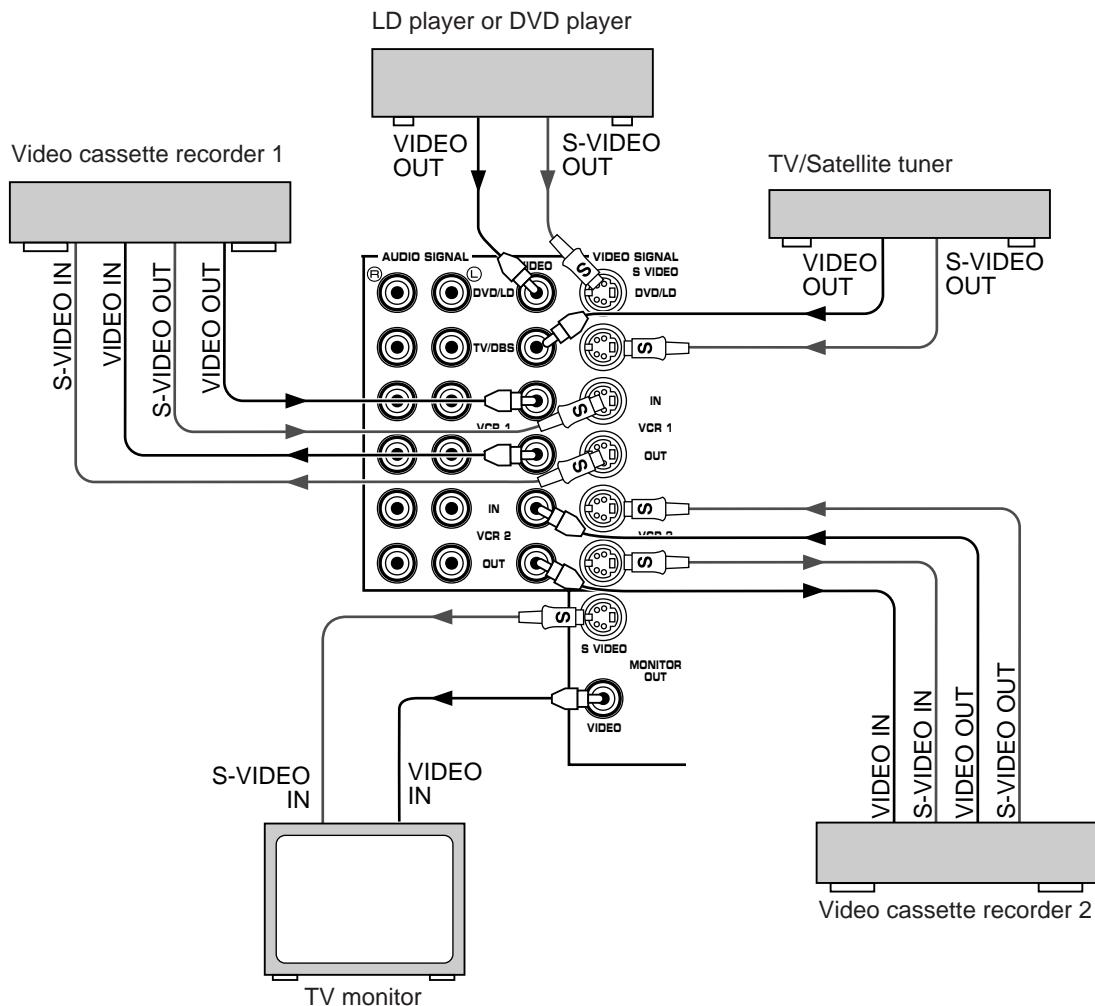
Notes about the Video superimpose

- If you watch a video source that is connected to both S VIDEO and VIDEO input terminals of this unit, signals of screen display information are output from only the S VIDEO MONITOR OUT terminal.
- When no video signal is input to either S VIDEO or VIDEO input terminals of this unit, signals of screen display information are output from both S VIDEO MONITOR OUT and VIDEO MONITOR OUT terminals with a color background.
- * For China and General models, if the PAL/NTSC switch on the rear panel is set to "PAL", nothing will be output from either S VIDEO MONITOR OUT or VIDEO MONITOR OUT terminal in this case.

S VIDEO terminals

This unit provides you with S VIDEO terminals in addition to standard type VIDEO terminals.

S VIDEO terminals transmit video signals separated into luminance (Y) signals and color (C) signals. In comparison with S VIDEO terminals, standard type VIDEO terminals transmit "composite" video signals.



 : S-video cable

■ Connecting an external decoder of a future format to this unit

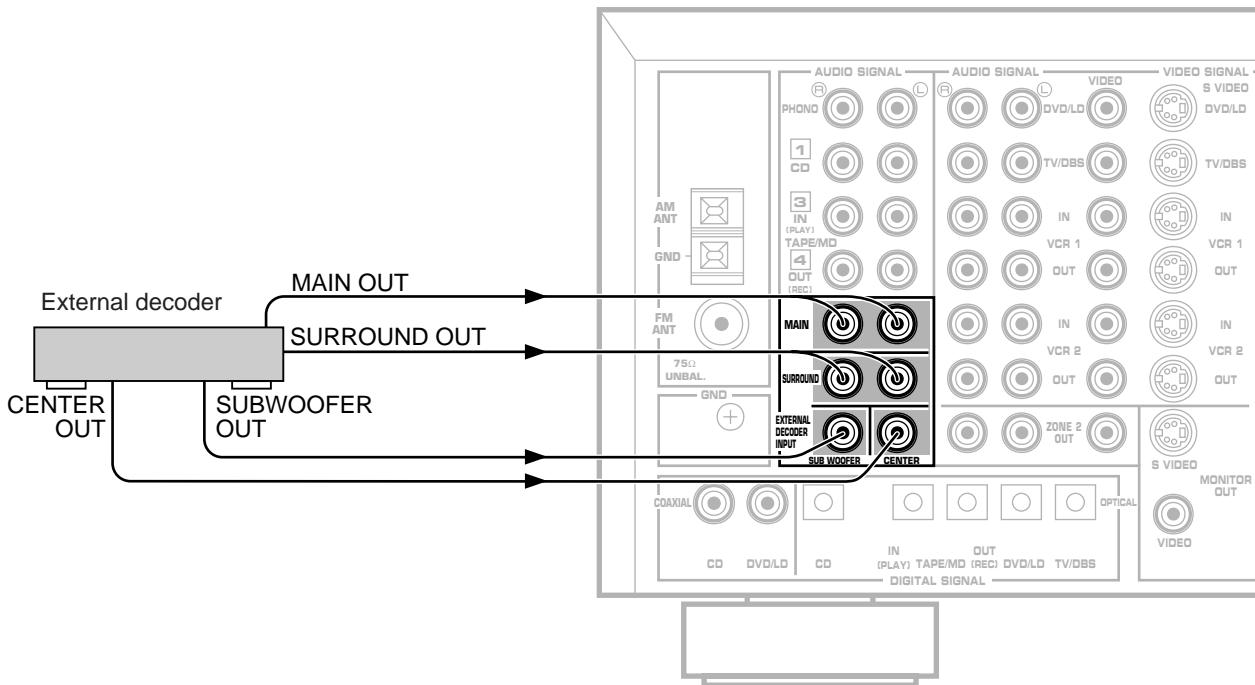
This unit is equipped with additional 6-channel audio signal input terminals (for left main, right main, center, left rear surround, right rear surround and subwoofer channels) for inputting signals from an external decoder of a future format to this unit.

To listen to a sound by reproducing signals input to these terminals, press the **EXT. DECODER** button on the front panel so that "EXT. DECODER IN" appears on the display. By doing so, the signals input to these terminals are sent to the corresponding SPEAKERS terminals and OUTPUT terminals of this unit.

Notes

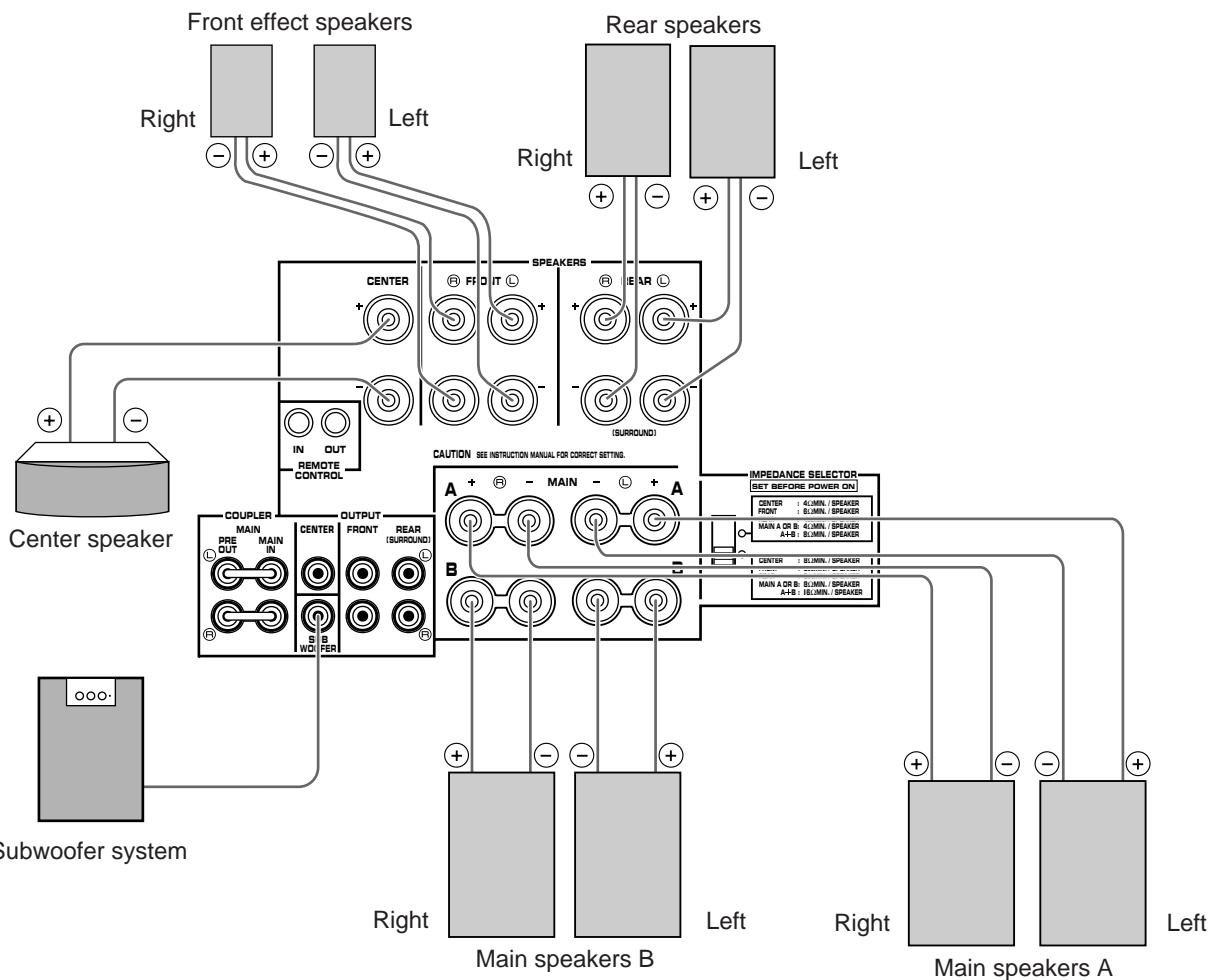
- When signals input to these terminals are selected, the digital sound field processor cannot be used.
- The settings of "1A" to "1E" in the SET MENU mode have no effect on the signals input to these terminals. The setting of "1F. MAIN LEVEL" is effective. (Refer to pages 29 to 30 for details.)
- The adjustments of the output level of the center speaker, rear speakers and subwoofer are effective when the signals input to these terminals are selected as the input source. (Refer to pages 51 to 52 for details.)

(U.S.A. model)



Speakers

Use speakers with the specified impedance shown on the rear of this unit.



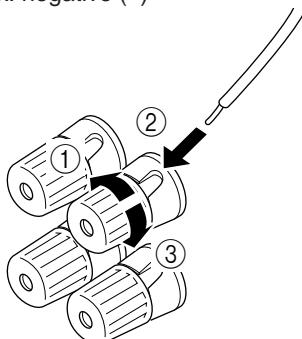
How to Connect:

Connect the **SPEAKERS** terminals to your speakers with the wire of the proper gauge (keep as short as possible). If the connections are faulty, no sound will be heard from the speakers. Make sure that the polarity of the speaker wires is correct. That is the + and – markings are observed. If these wires are reversed, the sound will be unnatural and lack bass.

Caution

Do not let the bare speaker wires touch each other or any metal part of this unit. This could damage this unit or the speakers, or both.

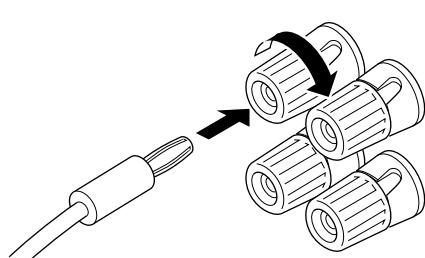
Red: positive (+)
Black: negative (-)



- ① Loosen the knob.
- ② Insert the bare wire.
[Remove approx. 5mm (1/4") insulation from the speaker wires.]
- ③ Tighten the knob and secure the wire.

<U.S.A., Canada, China, Australia and General models only>

Banana Plug connections are also possible. Simply insert the Banana Plug connector into the corresponding terminal.



Note on main speaker connections:

One or two speaker systems can be connected to this unit. If you use only one speaker system, connect it to either the **SPEAKERS A** or **B** terminals.

Note on a subwoofer connection:

You may wish to add a subwoofer to reinforce low frequencies or to output low bass sound from the subwoofer channel when reproducing discrete signals.

When using a subwoofer, connect the **SUBWOOFER** terminal of this unit to the **INPUT** terminal of the subwoofer amplifier, and connect the speaker terminals of the subwoofer amplifier to the subwoofer.

With some subwoofers, including the Yamaha Active Servo Processing Subwoofer System, the amplifier and subwoofer are in the same unit. Such a subwoofer needs only the connection between the **SUBWOOFER** terminal of this unit and the **INPUT** terminal of the subwoofer.

(Refer to page 24 for details about the **SUBWOOFER** terminal.)

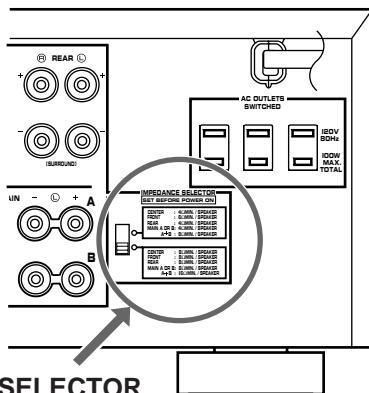
■ IMPEDANCE SELECTOR switch**WARNING**

Do not change the IMPEDANCE SELECTOR switch setting while the power to this unit is on, otherwise this unit may be damaged.

IF THIS UNIT FAILS TO TURN ON WHEN THE STANDBY/ON SWITCH IS PRESSED:

The **IMPEDANCE SELECTOR** switch may not be set to either end. If so, set the switch to either end when this unit is in the standby mode.

(U.S.A. model)

**IMPEDANCE SELECTOR**

Select the position whose requirements your speaker system meets.



(Upper position)

Center: The impedance of the speaker must be 4Ω or higher.

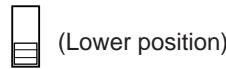
Rear: The impedance of each speaker must be 4Ω or higher.

Main: If you use one pair of main speakers, the impedance of each speaker must be 4Ω or higher.

If you use two pairs of main speakers, the impedance of each speaker must be 8Ω or higher.

Front effect:

The impedance of each speaker must be 6Ω or higher.



(Lower position)

Center: The impedance of the speaker must be 8Ω or higher.

Rear: The impedance of each speaker must be 8Ω or higher.

Main: <Except Canada model>

If you use one pair of main speakers, the impedance of each speaker must be 8Ω or higher.

If you use two pairs of main speakers, the impedance of each speaker must be 16Ω or higher.

<For Canada model only>

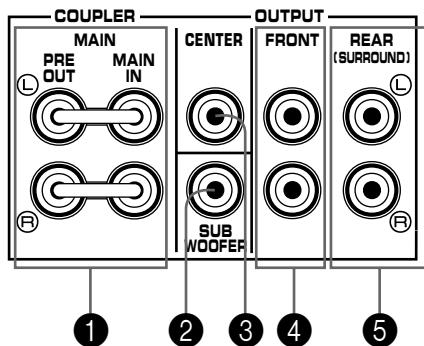
The impedance of each speaker must be 8Ω or higher.

Front effect:

The impedance of each speaker must be 8Ω or higher.

■ To drive main, center, front effect and/or rear speakers with external amplifiers

The speaker connections described on page 22 are fine for most applications. If for some reason, however, you wish to drive main, center, front effect and/or rear speakers with your existing amplifier, etc., the following terminals are available for connecting external amplifier(s) to this unit.



1 MAIN PRE OUT/MAIN IN terminals

The PRE OUT terminals are for main channel line output, and the MAIN IN terminals are for line input to the built-in main channel amplifier. The PRE OUT and MAIN IN terminals must be connected with jumper bars when the built-in amplifier is used.

However, if you drive main speakers with an external stereo power amplifier, first remove the jumper bars, and then connect the input terminals of the external amplifier (MAIN IN or AUX terminals of an amplifier or a receiver) to the PRE OUT terminals. No connection is needed to the MAIN IN terminals.

* Output signals from the PRE OUT terminals are affected by the use of **BASS**, **TREBLE**, **BALANCE** controls and **BASS EXTENSION** button and the **TONE BYPASS** button.

2 SUBWOOFER terminal

When using a subwoofer, connect its amplifier input to this terminal. Low frequencies distributed from the main, center and/or rear channels are output from this terminal. (The cut-off frequency of this terminal is 90 Hz.) Signals of LFE (low frequency effect) generated when Dolby Digital or DTS is decoded are also output if they are assigned to this terminal.

3 CENTER terminal

This terminal is for center channel line output.

If you drive a center speaker with an external power amplifier, connect the input terminal of the external amplifier to this terminal.

There is no connection to this terminal when you use the built-in amplifier.

4 FRONT terminals

These terminals are for front effect channel line output.

If you drive front effect speakers with an external stereo power amplifier, connect the input terminals of the external amplifier (MAIN IN or AUX terminals of an amplifier or a receiver) to these terminals.

There is no connection to these terminals when you use the built-in amplifier.

5 REAR (SURROUND) terminals

These terminals are for rear channel line output.

If you drive rear speakers with an external stereo power amplifier, connect the input terminals of the external amplifier (MAIN IN or AUX terminals of an amplifier or a receiver) to these terminals.

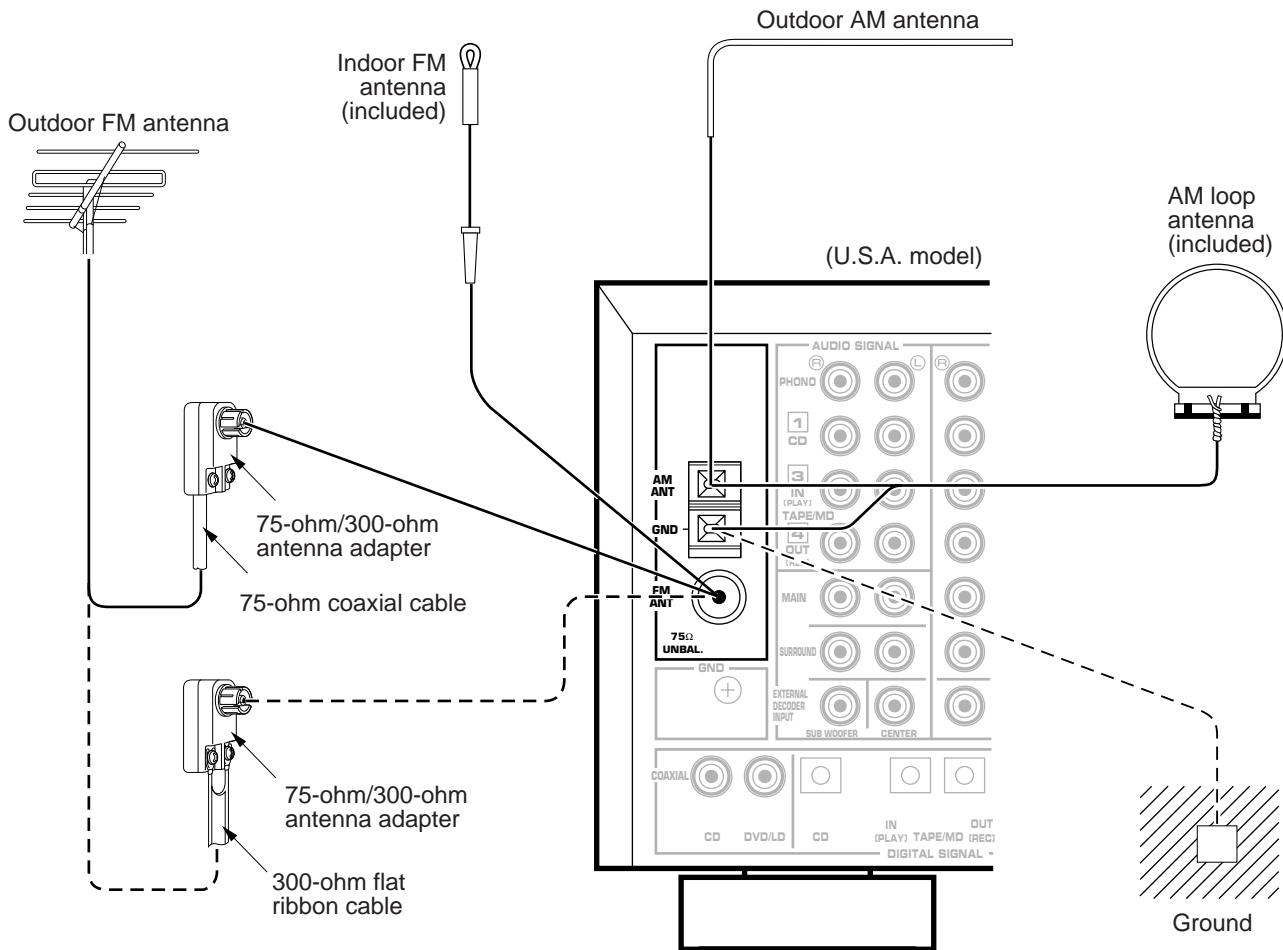
There is no connection to these terminals when you use the built-in amplifier.

Notes

- Output level of signals from all of these terminals are adjusted by the use of **VOLUME** control on the front panel or **MASTER VOLUME** keys on the remote controller.
- If an external power amplifier is connected to the CENTER, FRONT or REAR output terminals, do not use the corresponding SPEAKERS terminals (CENTER, FRONT or REAR).

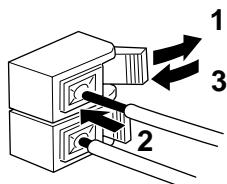
Antennas

- Each antenna should be connected to the designated terminals correctly, as shown in the following figure.
- Both AM and FM indoor antennas are included with this unit. In general, these antennas will probably provide sufficient signal strength. Nevertheless, a properly installed outdoor antenna will give clearer reception than an indoor one. If you experience poor reception quality only with the indoor antennas, the use of an outdoor antenna may result in improvement.

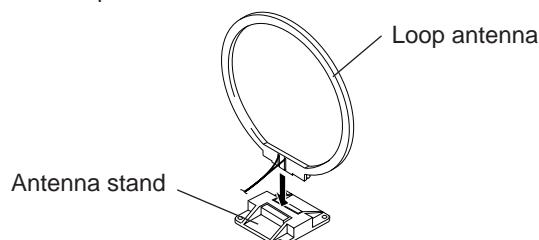


■ Connecting the AM loop antenna

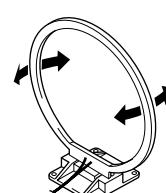
1. Press the tab and unlock the terminal hole.
2. Connect the AM loop antenna lead wires to the AM ANT and GND terminals.
3. Return the tab back to the original position to lock the lead wires. Lightly pull on the lead wires to confirm a good connection.



4. Attach the loop antenna to the antenna stand.



5. Orient the AM loop antenna so that the best reception is obtained.

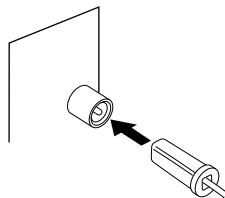


Notes

- The AM loop antenna should be placed apart from the main unit. The antenna may be hung on a wall.
- The AM loop antenna should be kept connected, even if an outdoor AM antenna is connected to this unit.

■ Connecting the indoor FM antenna

Connect the included indoor antenna to the 75Ω UNBAL. FM ANT terminal.



Note

Do not use an outdoor FM antenna and the indoor FM antenna at the same time.

GND terminal

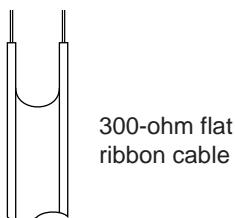
For maximum safety and minimum interference, connect the **GND** terminal to a good ground. A good ground is a metal stake driven into moist earth.

■ Optional outdoor AM antenna

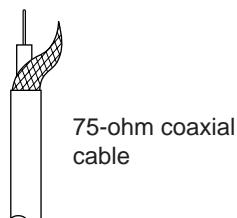
If this unit is placed in steel buildings or an area far from broadcasting stations, it may be necessary to install an outside long wire antenna.

■ Optional outdoor FM antenna

Consult your dealer or authorized service center about the best method of selecting and erecting an outdoor FM antenna. The choice of the flat ribbon cable is also important. Flat ribbon cable performs well electrically, and is cheaper and somewhat easier to handle when routing it through windows and around rooms. Coaxial cable is more expensive, does a much better job of minimizing interference, is less prone to the effects of weather and close-by metal objects, and is nearly as good a signal conductor as flat ribbon cable. Coaxial cable is somewhat more difficult to install at the point where the cable enters the building. If coaxial cable is selected, make sure the antenna is designed to be used with this type of cable.



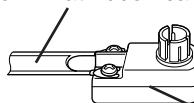
300-ohm flat ribbon cable



75-ohm coaxial cable

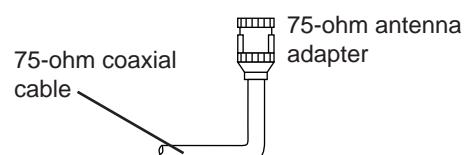
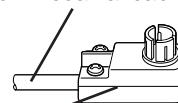
* Use a 75-ohm/300-ohm antenna adapter (not included) or a 75-ohm antenna adapter (not included) for connections.

300-ohm flat ribbon cable



75-ohm/300-ohm antenna adapter

75-ohm coaxial cable

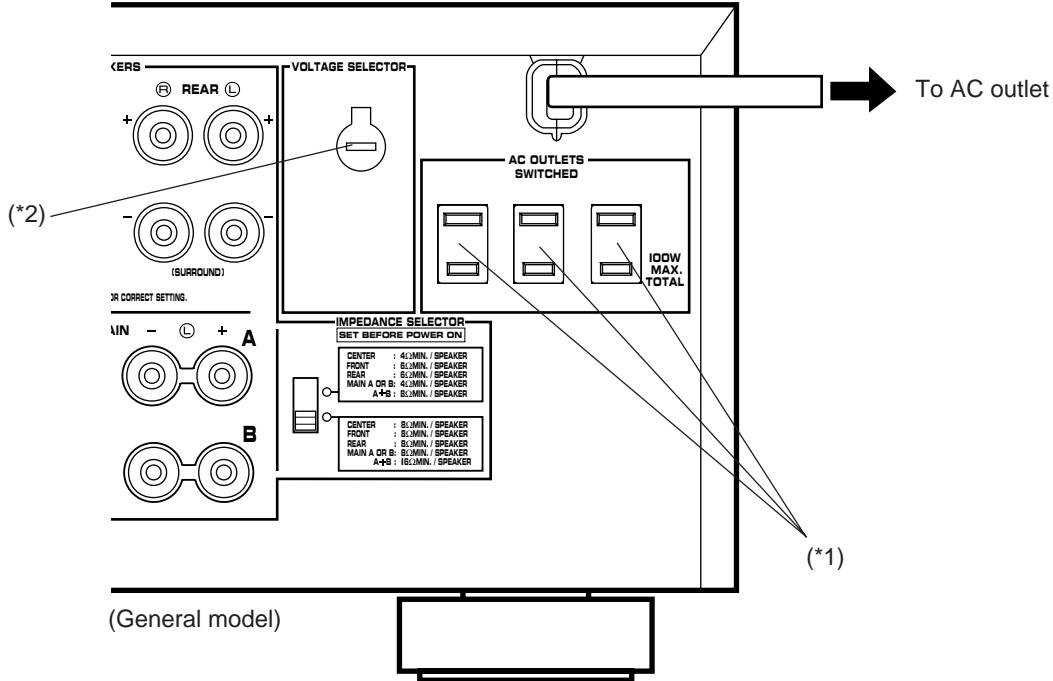


Notes for FM antenna installation

- To minimize the influence of automobile ignition noise, locate the antenna as far from heavy traffic as possible.
- Keep the flat ribbon cable or coaxial cable as short as possible. Do not bundle or roll up an excess of the cable.
- The antenna should be at least two meters (6.6 feet) from reinforced concrete walls or metal structures.

Plugging in this unit

- After completing all connections, plug the AC power cord into an AC outlet.
- Unplug the AC power cord from the AC outlet if this unit is not to be used for a long period of time.



(*1):

AC OUTLET(S)

(U.S.A., Canada, China, Singapore and General models) 3 SWITCHED OUTLETS
 (Australia model) 1 SWITCHED OUTLET

Use these to connect the power cords of your components to this unit.

The power to the **SWITCHED** outlets is controlled by this unit's **STANDBY/ON** switch or the remote controller's **SYSTEM POWER ON** and **STANDBY** keys. These outlets will supply power to any connected unit whenever this unit is turned on. The maximum power (total power consumption of components) that can be connected to the **SWITCHED AC OUTLET(S)** is 100W.

(*2):

Voltage Selector (China and General Models only)

The voltage selector on the rear panel of this unit must be set for your local main voltage BEFORE plugging into the AC main supply.

Voltages are 110/120/220/240 V AC, 50/60 Hz.

On screen display

If you connect your VCR, LD player, video monitor, etc. to this unit, you can take advantage of this unit's capability to display program titles, parameter data and information for various setting changes and adjustments on your video monitor screen. This information will be superimposed over the video image.

If there is no video source connected or it is turned off, the information will be displayed over a blue colored background.

P01 CONCERT HALL 1

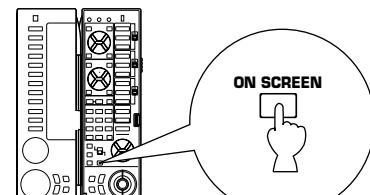
→ Europe Hall A
INIT. DELAY ··29ms
ROOM SIZE1.0
LIVENESS5

Note: The program titles, parameter data and other information are also displayed on the display panel of this unit.

Selecting a type of display

You can change the type of display showing various information on the monitor screen by pressing the **ON SCREEN** display key on the remote controller.

Press this key to change the screen to a full or simple display, or no display at all.



(Example)

Full display

'01 CONCERT HALL 1

→ Europe Hall A
INIT. DELAY ··29ms
ROOM SIZE1.0
LIVENESS5

Simple display

P01 CONCERT HALL 1
Europe Hall A

Goes off after being displayed for several seconds.

Notes

- When making a setting change or adjustment in the SET MENU mode, or adjusting the speaker balance by using the test tone, information is fully displayed on the monitor screen even if another type of display is currently selected.
- Information displayed on the monitor screen in this way cannot be recorded by a VCR.

Selecting the output modes (“SET MENU” mode)

The following functions control the output signals to the speakers in your audio system. When speaker connections are all completed, select a proper position on each function to maximize the performance of your speaker system.

* For details about the SET MENU mode, refer to pages 58 to 61.

1. SPEAKER SET

1A. CENTER SP

1B. REAR SP

1C. MAIN SP

1D. LFE/BASS OUT

1E. SYS. SETUP

1F. MAIN LEVEL

■ Function description

1A. CENTER SP

Choices: LARGE (LRG)/SMALL (SML)/NONE

Preset position: LRG

LRG: When your center speaker is approximately the same size as the main speakers.

SML: When you use a center speaker that is smaller than the main speakers.
In this position, low bass signals (below 90 Hz) at the center channel are output from the SUBWOOFER terminals (or the main speakers if the MAIN position is selected on “1D. LFE/BASS OUT”).

NONE: When you do not have a center speaker.
The center channel sound will be output from the left and right main speakers.

1B. REAR SP

Choices: LARGE/SMALL

Preset position: LARGE

LARGE: If your rear speakers have a high ability for bass reproduction, or a subwoofer is connected to the rear speaker in parallel.

In this position, full range signals are output from the rear speakers.

SMALL: If your rear speakers do not have a high ability for bass reproduction.
In this position, low bass signals (below 90 Hz) at the rear channels are output from the SUBWOOFER terminals (or the main speakers if the MAIN position is selected on “1D. LFE/BASS OUT”).

1C. MAIN SP

Choices: LARGE/SMALL
Preset position: LARGE

LARGE: If your main speakers have a high ability for bass reproduction.
 In this position, full range signals present at the main channels are output from the main speakers.

SMALL: If your main speakers do not have a high ability for bass reproduction. However, if your system does not include a subwoofer, do not select this position.
 In this position, low bass signals (below 90 Hz) at the main channels are output from the SUBWOOFER terminals (if the SW or BOTH position is selected on "1D. LFE/BASS OUT").

1E. SYS. SETUP

Choices: 7ch/5ch
Preset position: 7ch

7ch: If your speaker system includes a pair of front effect speakers.

5ch: If your speaker system does not include a pair of front effect speakers.
 Sound signals at the left and right front effect channels are distributed to the left and right main channels respectively, and output from the main speakers.

1D. LFE/BASS OUT

Choices: SW/MAIN/BOTH
Preset position: SW

MAIN: If your system does not include a subwoofer.
 In this position, full range signals present at the main channels, signals from the LFE channel and other low bass signals that are selected on "1A. CENTER SP" to "1C. MAIN SP" to be distributed from other channels are output from the main speakers.

SW/BOTH:
 Select either the SW or BOTH position if your system includes a subwoofer.
 In either position, signals at LFE channel and other low bass signals that are selected on "1A. CENTER SP" to "1C. MAIN SP" to be distributed from other channels are output from the SUBWOOFER terminals.
 When the LARGE position is selected on "1C. MAIN SP", in the **SW** position, no signal is distributed from the main channels to the SUBWOOFER terminals, however in the **BOTH** position, low bass signals from the main channels are output to both of the main speakers and the SUBWOOFER terminals.

1F. MAIN LEVEL

Choices: Normal/-10dB
Preset position: Normal

Normal: Normally, select this position.

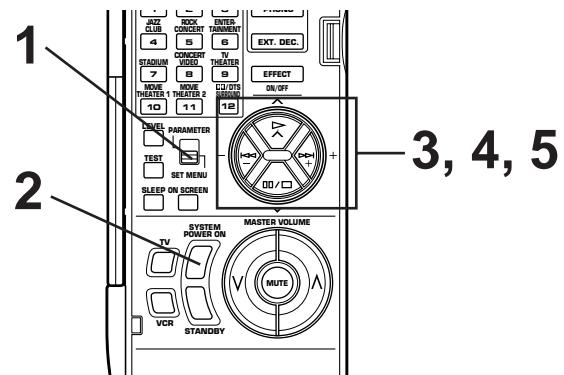
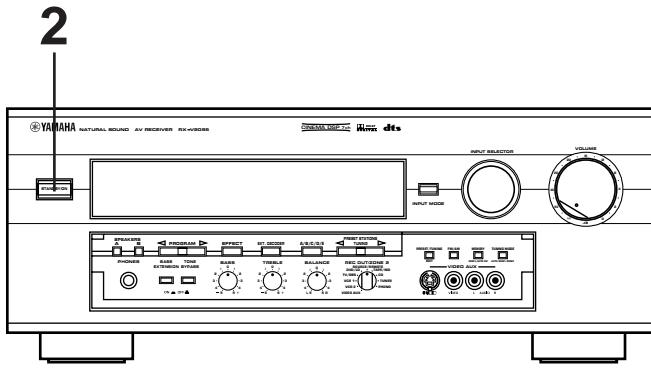
-10dB: If the volume levels to the center, rear and/or front effect speakers are lower than the level to the main speakers even though they are adjusted to maximum.
 The volume level to the main speakers are decreased by 10 dB, so you can adjust the speaker output level balance properly.

Note

The settings of "1A" to "1E" have no effect on the signals input to the EXTERNAL DECODER INPUT terminals on the rear of this unit.

■ Changing selections

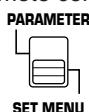
Refer to the display panel or the monitor screen when changing the selections.



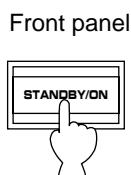
1 Set the **PARAMETER/SET MENU** switch on the remote controller to the **SET MENU** position.

Note: The cover of the remote controller must be open.

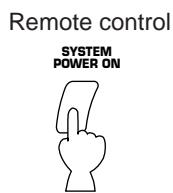
Remote control



2 Turn on the power of this unit. (If necessary, turn on the power of the monitor to display information.)

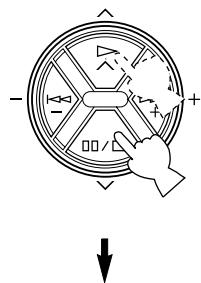


or



3 Select the function "1. SPEAKER SET" by using the "↑" or "↓" key. (The title will appear on the display).

Remote control



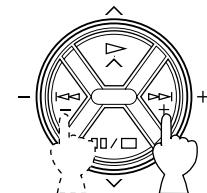
1. SPEAKER SET
Press +/- Key!

DVD/LD
TV/DBS
VCR 1
VCR 2
V/AUX

TAPE/MO
CD
TUNER
PHONO

4

Remote control



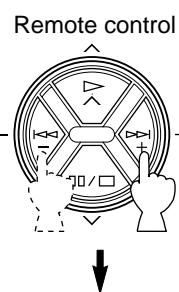
Press once.

1A. CENTER SP
PLRG SML NONE

DVD/LD
TV/DBS
VCR 1
VCR 2
V/AUX

TAPE/MO
CD
TUNER
PHONO

5 Use the "+" or "-" key to position the arrow-shaped cursor at the desired selection.



1A. CENTER SP
PLRG SML NONE

DVD/LD
TV/DBS
VCR 1
VCR 2
V/AUX

TAPE/MO
CD
TUNER
PHONO

Cursor

6 Follow the same procedure for "1B. REAR SP", "1C. MAIN SP", "1D. LFE/BASS OUT", "1E. SYS. SETUP" and/or "1F. MAIN LEVEL".

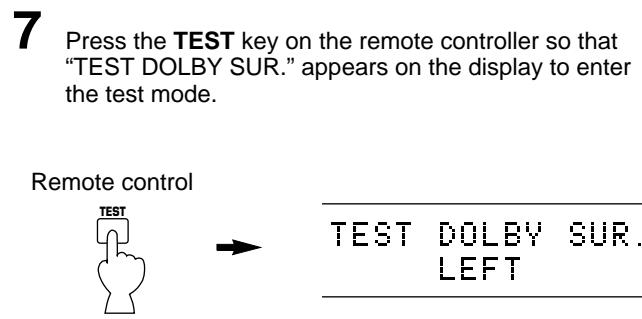
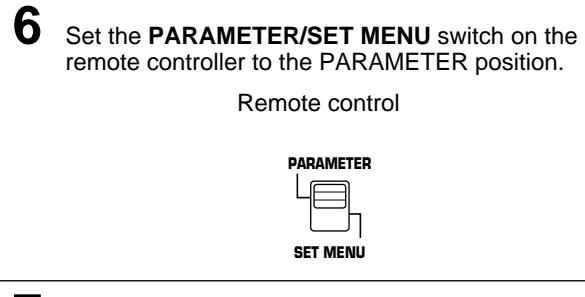
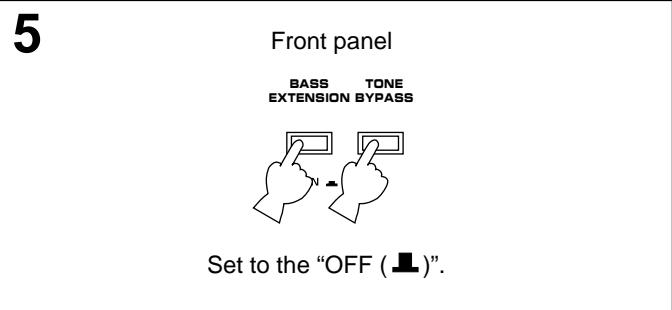
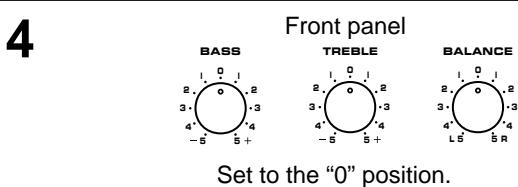
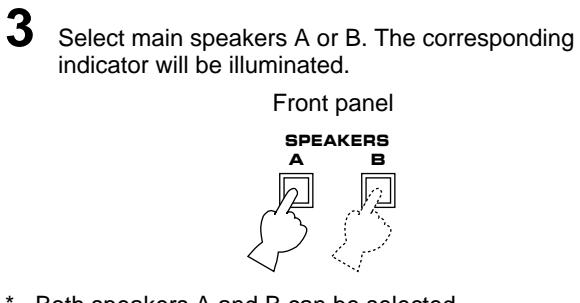
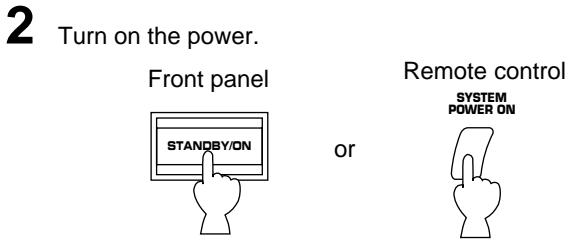
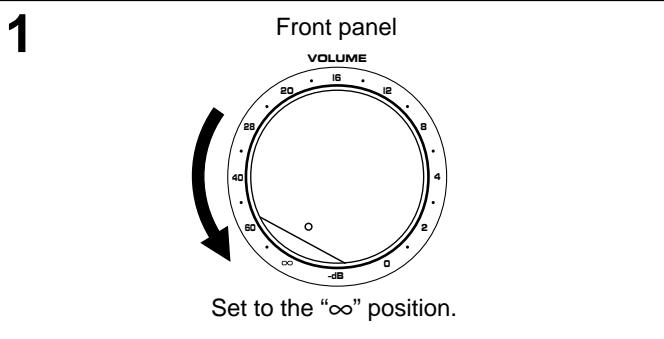
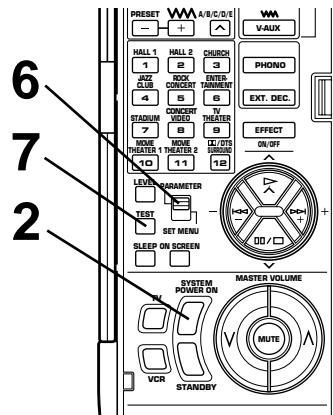
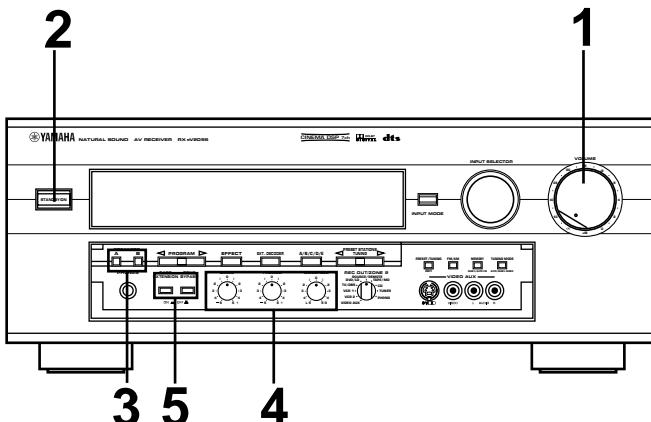
First select the function by following step 3, and then select the proper position by following step 5.

Speaker balance adjustment

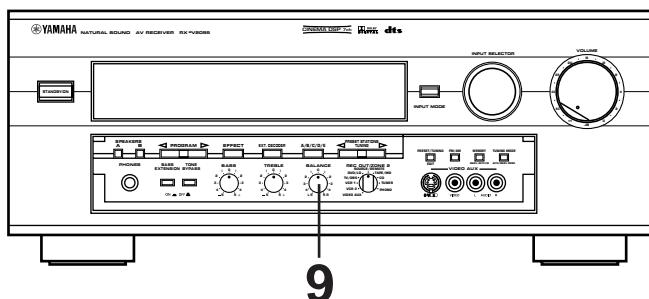
This procedure lets you adjust the sound output level balance between the main, center, rear and front effect speakers using the built-in test tone generator. After the adjustments, the sound output level heard at the listening position will be the same from each speaker. This is important for the best performance of the digital sound field processor, the Dolby Digital decoder, the Dolby Pro Logic Surround decoder and the DTS decoder.

The adjustment of each speaker output level should be done at your listening position with the remote controller.

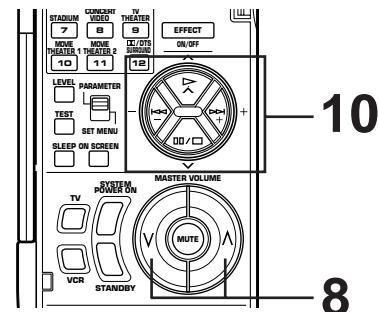
Note: The cover of the remote controller must be open.



CONTINUED ➞



9

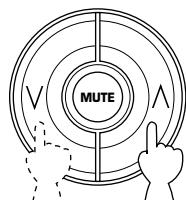


10

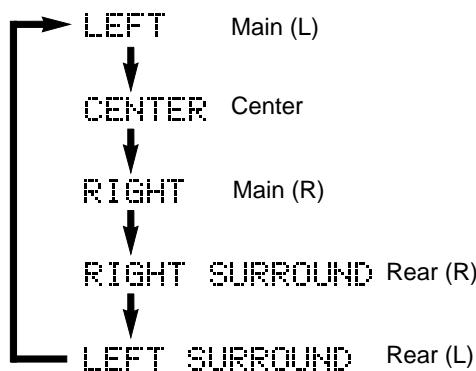
8

8 Turn up the volume.

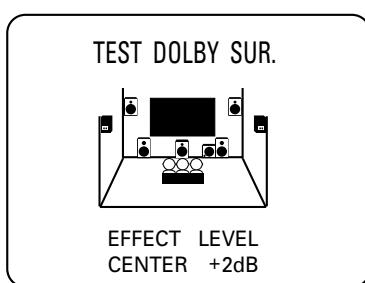
Remote control



You will hear a test tone (like pink noise) from the left main speaker, then the center speaker, then the right main speaker, then the right rear speaker, and then the left rear speaker, for about 2.5 seconds each. The display changes as shown below.



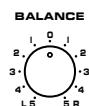
* The state of the test tone output is also shown on the monitor screen by an image of the audio listening room. This is convenient for adjusting each speaker level.



* If the function "1A. CENTER SP" in the SET MENU mode is set in the "NONE" position, you will hear the center channel test tone from the left and right main speakers.

9 Adjust the **BALANCE** control so that the effect sound output level of the left main speaker and the right main speaker are the same.

Front panel



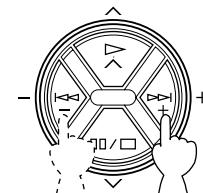
10 Adjust the sound output levels of the center speaker and the rear speakers so that they become almost the same as the main speakers.

How to adjust:

Pressing the + or - key adjusts the level to the speaker (except the main speakers) currently outputting the test tone.

- * Pressing the + key raises and the - key lowers the level.
- * While adjusting, the test tone is fixed on the selected speaker.

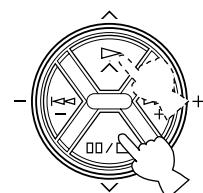
Remote control



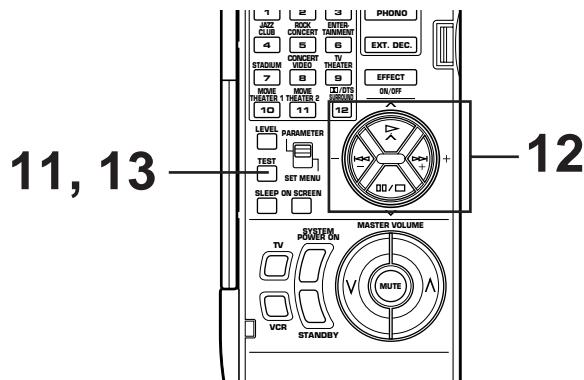
If desired, you can select a speaker to output the test tone by pressing the \wedge or \vee key once or more so that "CENTER", "RIGHT SURROUND" or "LEFT SURROUND" appears on the display.

- * While holding the \wedge or \vee key pressed, the test tone is fixed on the selected speaker.
- * "CENTER" shows the center speaker is selected, "RIGHT SURROUND" shows the right rear speaker, and "LEFT SURROUND" shows the left rear speaker.
- * The output level of the selected speaker can be adjusted by the + or - key.

Remote control

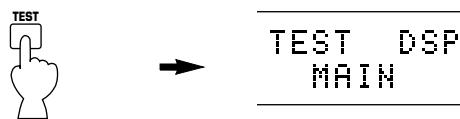


CONTINUED



11 For the front effect speaker level adjustment, press the **TEST** key on the remote controller again so that "TEST DSP" appears on the display.

Remote control



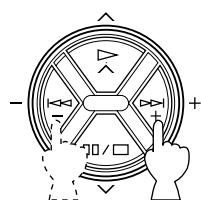
A calibration signal should be heard from the main speakers and the front effect speakers in turn.

MAIN Main
↓ ↑
FRONT Front effect

12 Adjust the front effect speaker level by pressing the + or - key so that it becomes almost the same as the main speakers.

* While adjusting, the test tone is fixed on the front effect speaker.

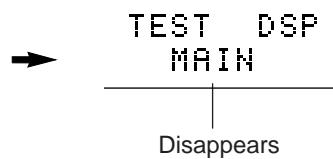
Remote control



* Pressing the \wedge or \vee key makes the test tone fix on the left front effect speaker and the right front effect speaker respectively. This is helpful for you to check that each speaker is correctly connected to this unit.

13 When the adjustment is finished, press the **TEST** key once again to cancel the test tone.

Remote control



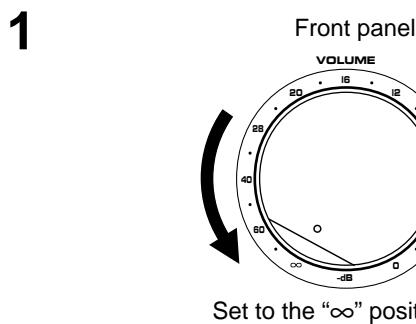
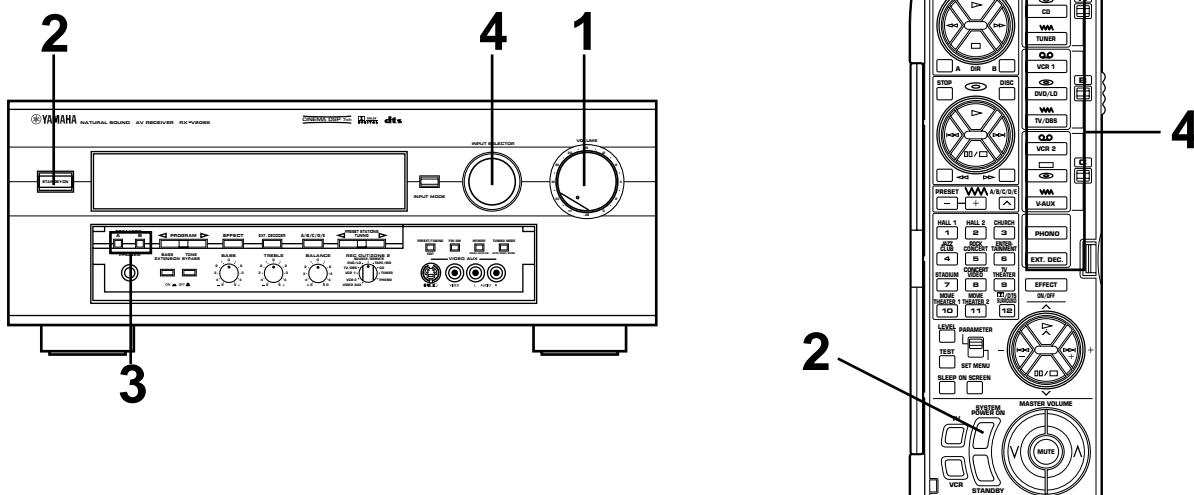
Notes

- Once you have completed these adjustments, you can adjust the sound level on your audio system by using the **VOLUME** control (or the **MASTER VOLUME** keys on the remote controller) only.
- If you use external power amplifiers, you may also use their volume controls to obtain proper balance.
- If the function "1A. CENTER SP" in the **SET MENU** mode is set in the "NONE" position, in step 10, the sound output level of the center speaker cannot be adjusted. This is because in this mode, the center sound is automatically output from the left and right main speakers.
- If there is insufficient sound output from the center and rear speakers, you may decrease the main speaker output level by setting the function "1F. MAIN LEVEL" in the **SET MENU** mode in the "-10dB" position.

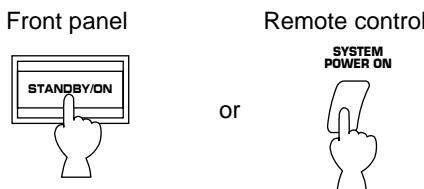
BASIC OPERATION

Playing a source

English

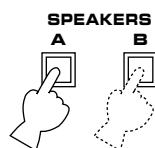


2 Turn on the power.



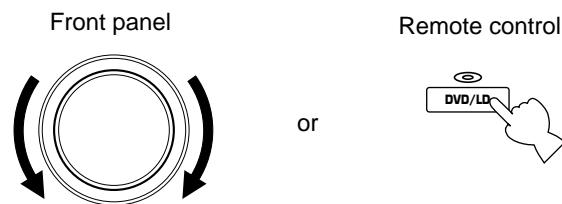
3 Select main speakers A or B. The corresponding indicator will be illuminated.

Front panel



* Both speakers A and B can be selected.

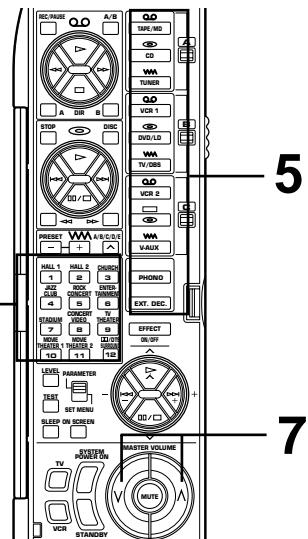
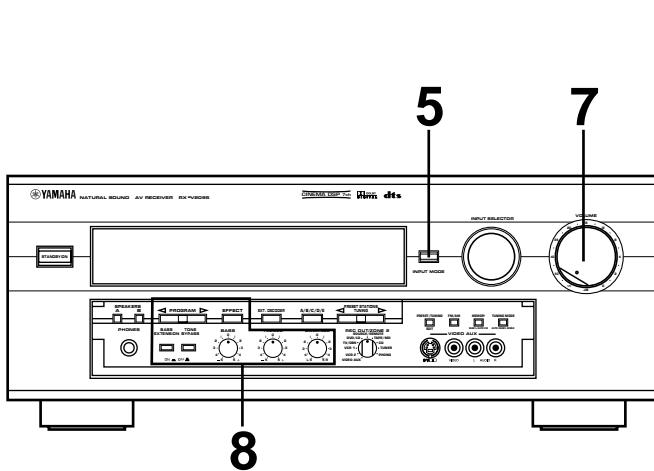
4 Select an input source.
(For video sources, turn on the TV/monitor.)
The selected source is shown on the display panel and the monitor screen.



Name of the selected input source

To select the source connected to the EXTERNAL DECODER INPUT terminals, press the **EXT. DECODER** button. "EXT. DECODER IN" will be illuminated on the display. (Refer to page 37 for details.)

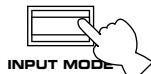
CONTINUED ➤



5 The current input mode is also shown for a source that inputs two or more types of signals to this unit.

To change the input mode, press the **INPUT MODE** button on the front panel or the input selector key for the currently selected source on the remote controller. (Refer to page 38 for details on switching the input mode.)

Front panel



or

Remote control

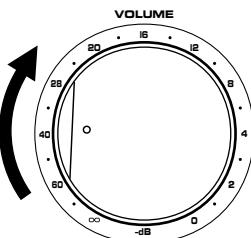


Input mode

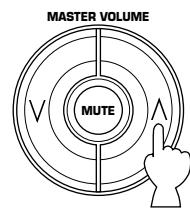
6 Play the source. (Refer to page 43 for details on tuning.)

7

Front panel



Remote control



Adjust the output level.

8 Adjust the **BASS**, **TREBLE**, **BALANCE** controls, etc. (refer to page 42) and use the digital sound field processor. (Refer to pages 48–50.)

When you finish using this unit

Press the **STANDBY/ON** switch on the front panel or the **STANDBY** key on the remote controller to enter the standby mode.

Front panel



Remote control

or



To select the source connected to this unit's EXTERNAL DECODER INPUT terminals as the input source.

Press the **EXT. DECODER** button. "EXT. DECODER IN" will appear on the display.

Front panel



Remote control

or



EXT. DECODER IN

Note

The input source selected in this way has priority over any other input source already selected.

To select another input source, press the **EXT. DECODER** button again so that "EXT. DECODER IN" goes off from the display, and then use the **INPUT SELECTOR**.

Notes on input source selection

- Note that selecting an input source means that the source which is connected to the corresponding input terminals on the rear panel is selected.
 - * To select the source connected to the **VIDEO AUX** terminals on the front panel, select "V-AUX".
- The setting of the **EXT. DECODER** button cannot be canceled by selecting another input source. To cancel it, press the **EXT. DECODER** button again so that "EXT. DECODER IN" goes off from the display.
- If you select a video input source without canceling the setting of the **EXT. DECODER** button, you will see the picture of the video input source and hear the sound of the source selected by the **EXT. DECODER** button.
- If a different audio source is selected with the input selector keys on the remote controller while enjoying a video source, the sound from the newly selected audio source is heard, but the picture from the video source can still be seen.
- When you select an input source, the DSP program (or the state of no DSP program is used) which was used when the same input source was last selected will be automatically recalled.
- If a nonstandardized source is played back, or the unit playing back a source is not operating correctly, "INPUT DATA ERR" appears on the display.

■ Switching the input mode

This unit allows you to switch the input mode for sources that send two or more types of signals to this unit.

<U.S.A. and Canada models only>

The following three input modes are provided.

AUTO:

This mode is automatically selected when you turn on the power of this unit.
In this mode, input signal is automatically selected by the following order of priority.

1. Digital signal encoded with Dolby Digital or DTS, or normal digital input signals (PCM)
2. Analog input signal (ANALOG)

* For CD and DVD/LD sources, if digital signals are input from both of the OPTICAL and COAXIAL terminals, the digital signal from the COAXIAL terminal is selected.

DTS:

In this mode, only digital input signals encoded with DTS is selected even though other signals are input at the same time.

ANALOG

In this mode, only analog input signals are selected even though digital signals are input at the same time.
Select this mode when you want to use analog input signals instead of digital input signals.

<Australia, China, Singapore and General models>

● For CD, TAPE/MD and TV/DBS sources:

The following three input modes are provided.

AUTO:

This mode is automatically selected when you turn on the power of this unit.
In this mode, input signal is automatically selected by the following order of priority.

1. Digital signal encoded with Dolby Digital or DTS, or normal digital input signals (PCM)
2. Analog input signal (ANALOG)

* For a CD source, if digital signals are input from both of the OPTICAL and COAXIAL terminals, the digital signal from the COAXIAL terminal is selected.

DTS:

In this mode, only digital input signals encoded with DTS is selected even though other signals are input at the same time.

ANALOG

In this mode, only analog input signals are selected even though digital signals are input at the same time.
Select this mode when you want to use analog input signals instead of digital input signals.

● For DVD/LD source:

The following five input modes are provided.

AUTO:

This mode is automatically selected when you turn on the power to this unit.
In this mode, the input signal is automatically selected by the following order of priority.

1. Dolby Digital RF signal (DOLBY DIGITAL)
2. Digital signal encoded with Dolby Digital or DTS, or normal digital input signals (PCM)
3. Analog input signal (ANALOG)

D.D.RF:

In this mode, only Dolby Digital RF signal is selected.

DTS:

In this mode, only digital input signals encoded with DTS are selected even though other signals are input at the same time.

DGTL:

In this mode, only digital input signals (DOLBY DIGITAL, DTS or PCM) are selected even though other types of signals are input at the same time.

ANALOG

In this mode, only analog input signals are selected even though other types of signals are input at the same time.

Notes on input mode selection

- The input mode for a TV/DBS source is selected with function "7. TV/DBS INPUT" in the SET MENU mode. This unit will be automatically set to the selected input mode when the power is turned on.
- Set the input mode to the following mode to play a DVD/LD source encoded with Dolby Digital.
 - U.S.A. and Canada models: AUTO
 - Australia, China, Singapore and General models: AUTO or D.D.RF
- Select the ANALOG mode to play a normal 2-channel source with a Dolby Pro Logic Surround program.
- The sound output may be interrupted in some LD and DVD players in the following situation:
The input mode is set to AUTO. A search is made while playing the disc encoded with Dolby Digital or DTS, then disc playing is restored. The sound output is interrupted for a moment because the digital input signal was selected again.
- The input mode cannot be changed for PHONO, TUNER, VCR 1, VCR 2 and VIDEO AUX sources because only analog signals are used.
- The present input mode appears on the front display and monitor screen when the input source is changed to DVD/LD, CD, TAPE/MD or TV/DBS, or the input mode is changed.

The present input signal also appears when the input mode is changed to AUTO, as shown in the following figure.



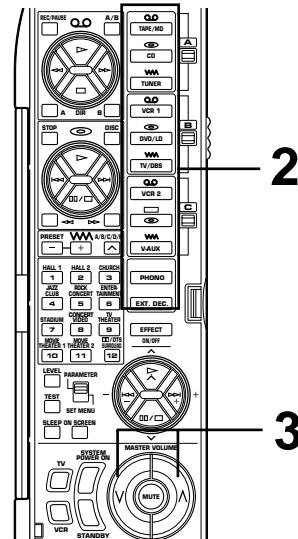
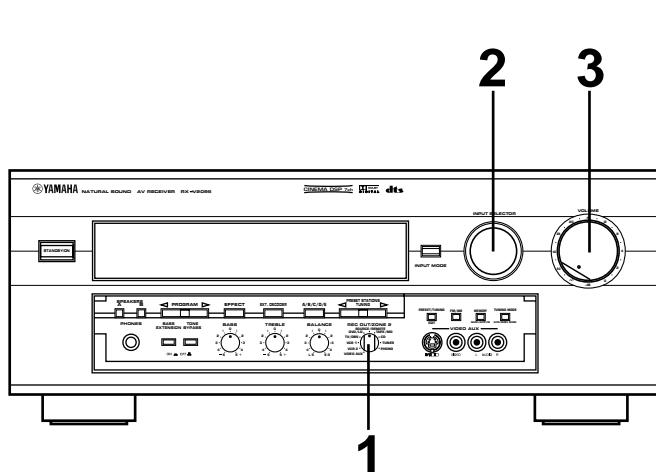
- * However, the present input signal will not appear when the input mode is switched during the speaker test mode. Only AUTO will be displayed.

Notes on playing a source encoded with DTS

- Select the DTS mode when playing an LD or CD source encoded with DTS. (Red "dts" indicator is illuminated on the display panel.) If the "AUTO" mode is selected, a noise may be heard just after playback begins. Do not play these sources in the ANALOG mode because only background noise will be output from the speakers.
- This unit is automatically locked in the DTS decoding mode when playing a CD or LD source encoded with DTS in the AUTO mode to prevent background noise in future operation. The red "dts" indicator will be flashing. In the above mode, no sound will be heard if a disc with normal digital signals (PCM) is played from a CD or LD source. The **INPUT MODE** button on the front panel, or, the input selector key for the current source on the remote controller must be pressed so that "PCM" appears on the display panel.

Recording a source to tape (or MD) or dubbing from tape (or MD) to tape (or MD)

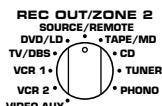
■ Recording the playing source to tape (or MD)



Note: The cover must be open when using the remote controller.

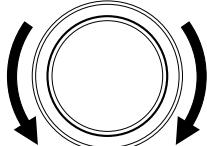
1 Set the **REC OUT/ZONE 2** selector to the **SOURCE/REMOTE** position.

Front panel



2 Select the source you want to record.

Front panel

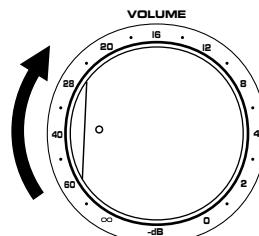


Remote control

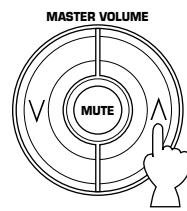


3 Play the source and then turn the **VOLUME** control up to confirm the input source. (Refer to page 43 for details on tuning.)

Front panel



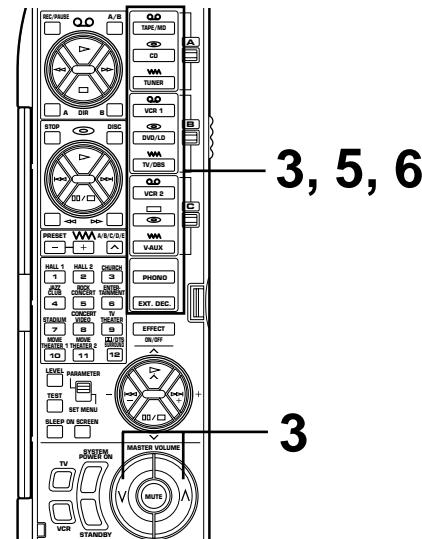
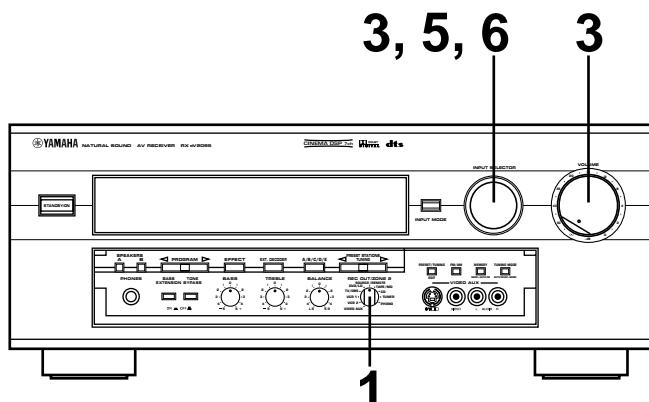
Remote control



4 Begin recording to the tape deck (or MD recorder etc.) or VCR connected to this unit.

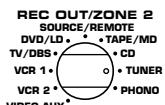
■ Recording a source to tape (or MD) while listening to (or watching) another source

The source (except for "SOURCE/REMOTE") that is selected with the **REC OUT/ZONE 2** selector can be recorded to a tape deck (MD recorder) and/or VCR, regardless of the **INPUT SELECTOR** setting.



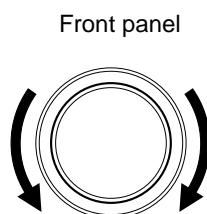
Note: The cover must be open when using the remote controller.

1 Select the source you want to record.

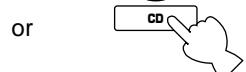


2 Play the source.

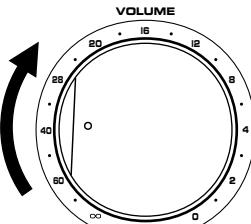
3 Select the source with the **INPUT SELECTOR** and adjust the **VOLUME** control to check the sound output.



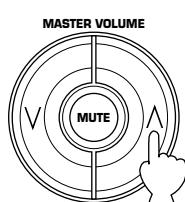
Front panel



or



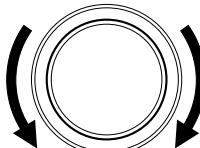
or



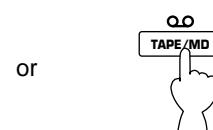
4 Begin recording on the tape deck (or MD recorder etc.) or VCR.

5 The sound and/or picture of the recording can be monitored by selecting the tape deck (or VCR) with the **INPUT SELECTOR**.

Front panel



Remote control



or

6 Selecting another source to enjoy with the **INPUT SELECTOR** will not effect the recording.